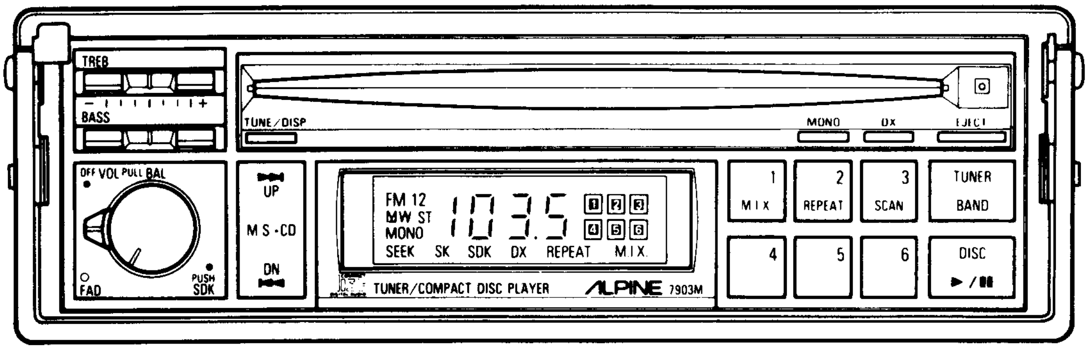
ALPINE SERVICE MANUAL

Digital FM/MW/LW Compact Disc Player

REVISED

- Serial Numbers after No. 90717701.
- For the CD player mechanism parts of this model, refer to the Service Manual · DP-S Series (Part No. 68P13315W02).


TREB
BASS
TUNE/DISP
MONO
DX
EJECT
OFF VOL PULL BAL
FAD
PUSH SDK
UP
M S·CD
DN
FM 12
MW ST
MONO
103.5
SEEK SK SDK DX REPEAT MIX
TUNER/COMPACT DISC PLAYER
ALPINE 7903M
1 MIX
2 REPEAT
3 SCAN
TUNER BAND
4
5
6
DISC ►/❚❚

7903M

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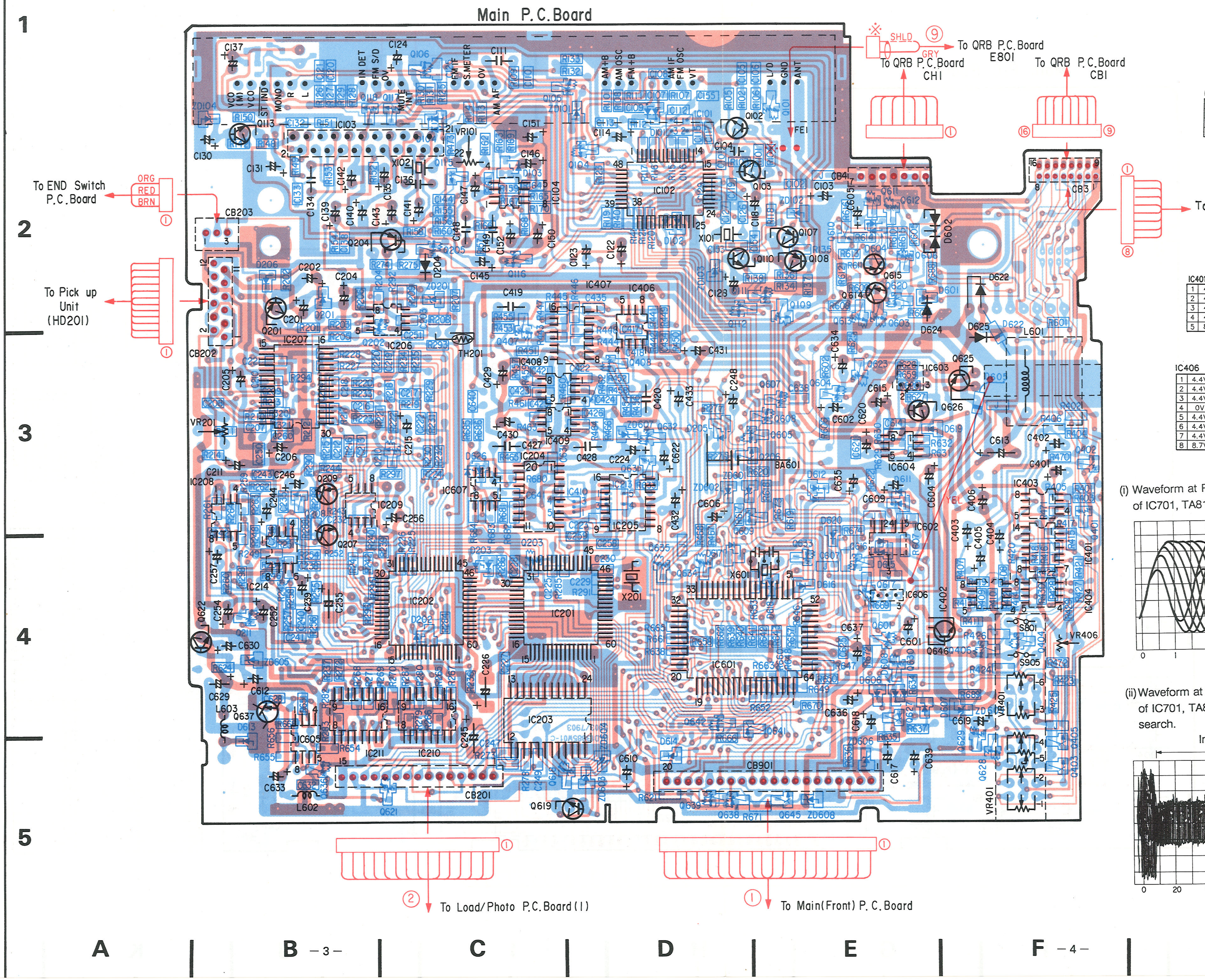
Parts Layout on P.C. Boards and Wiring Diagram (1/2)


Main P.C.Board
To QRB P.C.Board
E801
To QRB P.C.Board
CH1
To QRB P.C.Board
CB1
SHLD
GRY
⑨
To END Switch
P.C.Board
ORG
RED
BRN
CB203
To Pick up
Unit
(HD201)
CB202
CB4
CB3
CB201
CB901
To Load/Photo P.C.Board (1)
To Main(Front) P.C.Board
IC101
IC102
IC103
IC201
IC202
IC203
IC401
IC402
IC403
IC404
IC406
IC407
IC408
IC409
IC601
IC602
IC603
IC604
IC605
IC606
X101
X102
X201
X601
VR101
VR201
VR401
VR406
TH201
L601
L602
L603
S801
S905
A
B
C
D
E
F
G
H
1
2
3
4
5

IC101	
1	0V
2	3.7V
3	1.5V
4	1V

IC104			
1	4.2V	5	5.2V
2	4.2V	6	5.2V
3	4.2V	7	1.3V
4	0V	8	8.6V

IC102			
1	1.2V	25	0V
2	0V	26	4.5V/1V
3	5V	27	1V/5V
4	0V	28	0V
5	2V	29	0V
6	5V/0V	30	0V
7	5V/0V	31	0V
8	5V/0V	32	0V
9	0V	33	0V
10	0V	34	5V/0V
11	0V	35	PS
12	0V/PS	36	PS
13	0V	37	PS
14	0V/PS	38	0V/PS
15	PS	39	0V
16	PS	40	0V
17	PS	41	0V
18	5V/0V	42	0V
19	0V/5V	43	
20	PS	44	
21	PS	45	4V/0V
22	0V	46	4V/0V
23	0V	47	0V
24	5V	48	5V

IC103	
1	8.3V
2	2.1V
3	2.1V
4	0V
5	2.1V
6	1.4V
7	2.1V
8	2.6V
9	3V
10	0V
11	0.6V
12	2.9V
13	2.9V
14	2.9V
15	2.4V
16	0V
17	0V
18	3.1V
19	3V
20	3V
21	3V
22	4.1V

IC401					
1	4.4V	6	8.7V	11	4.4V
2	4.4V	7	0V	12	0V
3	4.4V	8	4.4V	13	0V
4	4.4V	9	4.4V	14	8.7V
5	8.7V	10	4.4V		

IC402	
1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC403	
1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.9V

IC40	
1	
2	
3	
4	
5	
6	
7	
8	

IC406	
1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

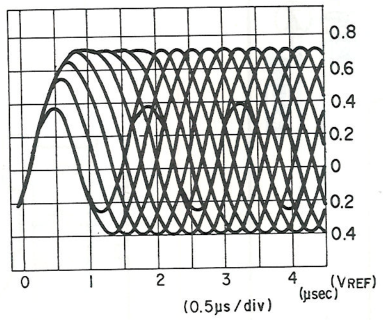
IC407			
1	4.4V	9	0V
2	4.4V	10	0V
3	4.4V	11	0V
4	0V	12	4.4V
5	3.5V	13	4.4V
6	0V	14	4.4V
7	0V	15	1.1V
8	0V	16	8.9V

IC408	
1	4.7V
2	4.7V
3	4.6V
4	0V
5	1.3V
6	4.7V
7	4.7V
8	8.9V

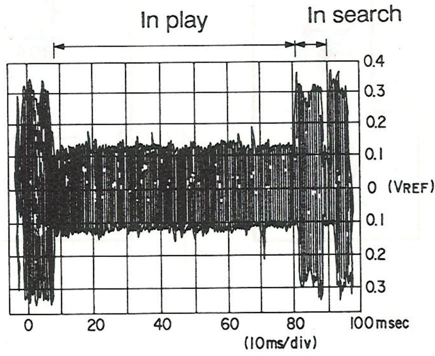
IC409	
1	4.7V
2	4.7V
3	3.1V
4	0V
5	3.1V
6	4.7V
7	4.7V
8	8.7V

IC410	
1	0V
2	PS
3	0V
4	PS
5	5V

(i) Waveform at RFO terminal (No. 10 pin of IC701, TA8101F), when unit in play.



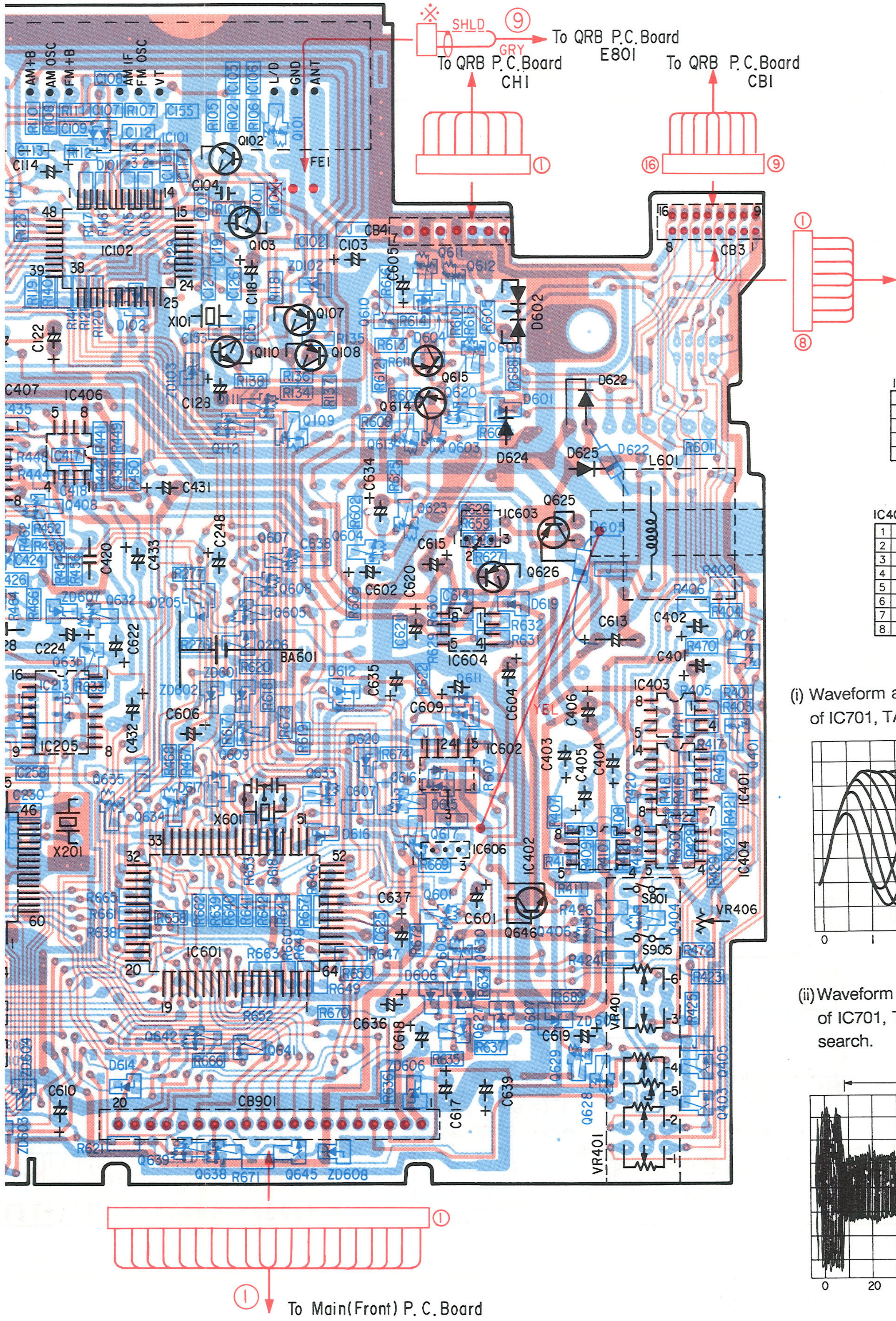
(ii) Waveform at TSO terminal (No. 22 pin of IC701, TA8101F), when unit in play/search.



IC601					
1	0V/5V	23	2.2V/0V	45	PS
2	0V/5V	24	3.6V/0V	46	4.6V/
3	0V/5V	25	0V	47	0V/
4	0V/5V	26	0V	48	4.6V/
5	PS	27	0V	49	5V/
6	PS	28	0V	50	4.9V/
7	PS	29	3.6V/0V	51	PS
8	PS	30	3.6V/0V	52	PS
9	PS	31	0V/PS	53	PS
10	4.8V	32	0V/4.9V	54	4.9V/
11	0V/5V	33	0V/4.2V	55	4.5V/
12	4.8V/0V	34	PS	56	4.3V/
13	PS	35	4.9V	57	4.3V/
14	PS	36	4.9V/0V	58	4.9
15	PS	37	0V/4.9V	59	4.9
16	5V/0V	38	4.9V/0V	60	0V
17	0V/5V	39	4.8V/0V	61	0V/4
18	0V/5V	40	4.8V/0V	62	–
19	0V/5V	41	5V/0V	63	–
20	0V/5V	42	0V/PS	64	–
21	3.9V/0V	43	5V/0V		
22	0V/5V	44	PS		

62,63,64
1/6 VDD,2/6 VDD,3/6 VDD,4/6 VDD,5/6 VDD ,VDD

ram (1/2)



IC101					
1	0V				
2	3.7V				
3	1.5V				
4	1V				

IC104

1	4.2V	5	5.2V
2	4.2V	6	5.2V
3	4.2V	7	1.3V
4	0V	8	8.6V

IC102

1	1.2V	25	0V
2	0V	26	4.5V/1V
3	5V	27	1V/5V
4	0V	28	0V
5	2V	29	0V
6	5V/0V	30	0V
7	5V/0V	31	0V
8	5V/0V	32	0V
9	0V	33	0V
10	0V	34	5V/0V
11	0V	35	PS
12	0V/PS	36	PS
13	0V	37	PS
14	0V/PS	38	0V/PS
15	PS	39	0V
16	PS	40	0V
17	PS	41	0V
18	5V/0V	42	0V
19	0V/5V	43	
20	PS	44	
21	PS	45	4V/0V
22	0V	46	4V/0V
23	0V	47	0V
24	5V	48	5V

IC103

1	8.3V
2	2.1V
3	2.1V
4	0V
5	2.1V
6	1.4V
7	2.1V
8	2.6V
9	3V
10	0V
11	0.6V
12	2.9V
13	2.9V
14	2.9V
15	2.4V
16	0V
17	0V
18	3.1V
19	3V
20	3V
21	3V
22	4.1V

IC203

1	PS	13	PS
2	PS	14	PS
3	PS	15	PS
4	PS	16	PS
5	PS	17	PS
6	PS	18	0V
7	PS	19	PS
8	PS	20	PS
9	PS	21	PS
10	PS	22	PS
11	PS	23	PS
12	0V	24	5V

IC204

1	2.3V	11	1.2V
2	2.3V	12	0V
3	2.3V	13	0V
4	2.3V	14	2.3V
5	2.3V	15	0V
6	0V	16	0V
7	0V	17	0V
8	0V	18	0V
9	0.4V	19	0V
10	2.3V	20	1.5V

IC205

1	PS	9	5V
2	PS	10	PS
3	5V	11	PS
4	PS	12	PS
5	PS	13	PS
6	0V	14	PS
7	PS	15	PS
8	0V	16	5V

IC206

1	0.6V
2	5V
3	2.6V
4	0V
5	0.2V/0V
6	0.2V
7	2.8V
8	5V

IC207

1	2V	11	2.2V	21	2.2V
2	2V	12	2.2V	22	2.2V
3	2.2V	13	2.2V	23	2.2V
4	2V	14	0V	24	2.2V
5	2V	15	PS	25	2.2V
6	2V	16	1V	26	2.8V
7	2V	17	PS	27	2.2V
8	5V	18	1V	28	2.2V
9	2V	19	PS	29	2.2V
10	2V	20	2.5V	30	2.2V

IC208

1	2.2V
2	2.2V
3	2.2V
4	0V
5	2.2V
6	2.2V
7	2.2V
8	5V

IC209

1	2.5V
2	2.5V
3	2.5V
4	0V
5	4.1V
6	4.1V
7	3.5V
8	8V

IC210

1	0V	9	0V
2	0V	10	0V
3	4.5V	11	4V
4	8V	12	4V
5	4V	13	4V
6	0V	14	4V
7	0V	15	0V
8	0V	16	0V

IC211

1	0V	9	0V
2	0V	10	0V
3	2.5V	11	4V
4	8V	12	4V
5	4V	13	4V
6	0V	14	4V
7	0V	15	0V
8	0V	16	0V

IC213

1	0V
2	PS
3	0V
4	PS
5	5V

IC214

1	2.2V
2	2.2V
3	2.2V
4	0V
5	2.2V
6	2.2V
7	2.2V
8	5V

IC401

1	4.4V	6	8.7V	11	4.4V
2	4.4V	7	0V	12	0V
3	4.4V	8	4.4V	13	0V
4	4.4V	9	4.4V	14	8.7V
5	8.7V	10	4.4V		

IC402

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC403

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.9V

IC404

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC406

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC407

1	4.4V	9	0V
2	4.4V	10	0V
3	4.4V	11	0V
4	0V	12	4.4V
5	3.5V	13	4.4V
6	0V	14	4.4V
7	0V	15	1.1V
8	0V	16	8.9V

IC408

1	4.7V
2	4.7V
3	4.6V
4	0V
5	1.3V
6	4.7V
7	4.7V
8	8.9V

IC409

1	4.7V
2	4.7V
3	3.1V
4	0V
5	3.1V
6	4.7V
7	4.7V
8	8.7V

IC410

1	0V
2	PS
3	0V
4	PS
5	5V

IC201

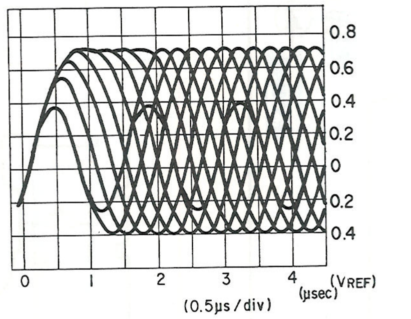
1	PS	11	PS	21	0V	31	0V	41	PS	51	5V
2	PS	12	PS	22	0V	32	PS	42	PS	52	5V
3	PS	13	PS	23	5V	33	PS	43	PS	53	5V
4	PS	14	PS	24	5V	34	PS	44	PS	54	0V
5	PS	15	PS	25	PS	35	PS	45	PS	55	5V
6	PS	16	PS	26	PS	36	5V	46	0V	56	PS
7	PS	17	PS	27	PS	37	0V	47	PS	57	PS
8	PS	18	5V	28	PS	38	PS	48	PS	58	PS
9	PS	19	5V	29	PS	39	PS	49	5V	59	PS
10	PS	20	0V	30	0V	40	PS	50	5V	60	PS

IC202

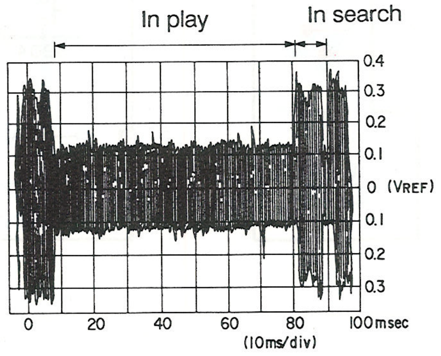
1	PS	11	PS	21	PS	31	0V/PS	41	0V	51	PS
2	5V/0V	12	2.2V	22	2.2V	32	0V/4.9V	42	PS	52	PS
3	5V/0V	13	2.2V	23	5V	33	0V/4.2V	43	PS	53	PS
4	PS	14	2.2V	24	2.2V	34	PS	44	PS	54	4.9V/0V
5	PS	15	2.2V	25	2.2V	35	4.9V	45	5V	55	4.5V/0V
6	PS	16	2.2V	26	2.2V	36	4.9V/0V	46	5V	56	4.3V/0V
7	2.2V	17	2.2V	27	2V	37	0V/4.9V	47	PS	57	4.3V/0V
8	1V	18	2.2V	28	PS	38	4.9V/0V	48	PS	58	4.9V
9	PS	19	2.6V	29	PS	39	4.8V/0V	49	PS	59	4.9V
10	1V	20	2V	30	2.2V	40	4.8V/0V	50	PS	60	0V

	E	C	B		E	C	B
Q101	0V	6.6V/0V	4.7V/0V	Q606	14V	14V	0V
Q102	0.1V	1.1V~7.4V	0.7V	Q607	0V/0V	4.7V/0V	0V/14.4V
Q103	0.7V	9.4V	1.1V	Q608	0V/0V	4.7V/0V	0V/14.4V
Q105	0V	0V	6.7V/0V	Q609	14.2V	14.2V	7.3V
Q106	0V	0V/7.7V	0V/4.7V	Q610	14V	14V	13.3V
Q107	8.8V	8.7V/0V	8.8V/8.1V	Q611	0V	0V	10V
Q108	8.8V	8.8V/1.4V	8.6V/8.1V	Q612	0V	0V	9.7V
Q109	0V	8.6V/0V	4.4V/1V	Q613	0V	0.1V	4.3V
Q110	8.8V	14V	9.4V	Q614	14V	14V	13.3V
Q111	0V/13V	13.9V/0V	0V/14V	Q615	14V	14V	13.4V
Q112	0V	0V/13.6V	5.1V/0V	Q616	0V	0V	4.5V
Q113	8.6V	13.7V	9.2V	Q617	5.1V	4.9V	0V
Q115	1V	2.9V	1.6V	Q618	0V	4V	0V
Q116	0V	3.3V	0.6V	Q619	7.6V	14V	8.2V
Q201	3.6V	1.9V	3V	Q621	0V	0V	3.9V
Q202	5.2V	0.3V	5.1V	Q922	5.1V	8.3V	5.7V
Q203	0V	2.2V	0V	Q623	0V	0.4V	3.3V
Q204	14V	0V	3.4V	Q625	14.1V	14.1V	13.4V
Q205	0V	14V	0V	Q626	14.1V	8.7V	13.5V
Q206	0V	0V	0V	Q627	10V	0.3V	10V
Q207	4.1V	8.3V	4.7V	Q629	0V	14V	0V
Q208	3.5V	4.7V	4.1V	Q630	0V	0V	4.3V
Q209	0V	4.1V	3.5V	Q631	2.4V	8.7V	3V
Q210	2.2V/2.2V	2.3V/2.3V	4.8V/0V	Q632	3V	0V	0V
Q211	2.3V	2.3V	5V	Q633	5.7V	4.5V	5.7V
PT301	0V	5V/0V	–	Q634	0V	8.7V	0V
PT302	0V	5V/0V	–	Q636	14.2V	14.1V	0V
PT303	0V	5V/0V	–	Q637	13.8V	PS	PS
PT304	0V	5V/0V	–	Q638	14V	13.1V	0V
Q401	0V	0V	0.2V	Q639	0V	0V	5V
Q402	0V	0V	0.2V	Q641	7.6V	7.4V	6.8V
Q404	0V	8.7V	0V	Q642	0V	0.2V	2.2V
Q406	0V	0V	3.5V	Q645	12.2V	13.3V	12.9V
Q407	0V	SIG	0V	Q646	14V	14V	13.5V
Q408	0V	SIG	0V	Q403	0V	0V	1V
Q601	0V/0V	4.8V/0V	0V/8.1V	Q405	0V	0V	1V
Q605	0V	0V	3.8V	Q603	0V	14V	4.9V
Q104	0V	0V	0.8V	Q604	0V	14V	1V
Q117	4.1V	4.1V	4.9V	Q628	14V	0.3V	14V
Q118	4.1V	4.1V	4.9V	Q620	14V	0V	14V

(i) Waveform at RFO terminal (No. 10 pin of IC701, TA8101F), when unit in play.



(ii) Waveform at TSO terminal (No. 22 pin of IC701, TA8101F), when unit in play/search.



IC601

1	0V/5V	23	2.2V/0V	45	PS
2	0V/5V	24	3.6V/0V	46	4.6V/0V
3	0V/5V	25	0V	47	0V/5V
4	0V/5V	26	0V	48	4.6V/0V
5	PS	27	0V	49	5V/0V
6	PS	28	0V	50	4.9V/0V
7	PS	29	3.6V/0V	51	PS
8	PS	30	3.6V/0V	52	PS
9	PS	31	0V/PS	53	PS
10	4.8V	32	0V/4.9V	54	4.9V/0V
11	0V/5V	33	0V/4.2V	55	4.5V/0V
12	4.8V/0V	34	PS	56	4.3V/0V
13	PS	35	4.9V	57	4.3V/0V
14	PS	36	4.9V/0V	58	4.9V
15	PS	37	0V/4.9V	59	4.9V
16	5V/0V	38	4.9V/0V	60	0V
17	0V/5V	39	4.8V/0V	61	0V/4.9V
18	0V/5V	40	4.8V/0V	62	–
19	0V/5V	41	5V/0V	63	–
20	0V/5V	42	0V/PS	64	–
21	3.9V/0V	43	5V/0V		
22	0V/5V	44	PS		

62,63,64
1/6 VDD,2/6 VDD,3/6 VDD,4/6 VDD,5/6 VDD ,VDD

IC602

1	14V
2	7.8V
3	0.6V
4	5.7V
5	5.7V

IC603

1	13.5V
2	0V
3	1.3V

IC604

1	8.2V
2	0.4V
3	2.4V
4	0V
5	4.3V
6	4.4V
7	4.4V
8	8.7V

IC605

1	PS
2	0V
3	PS
4	0V
5	1.3V
6	13.9V
7	13.9V
8	PS

IC606

1	5V/0V
2	5V
3	0V

IC607

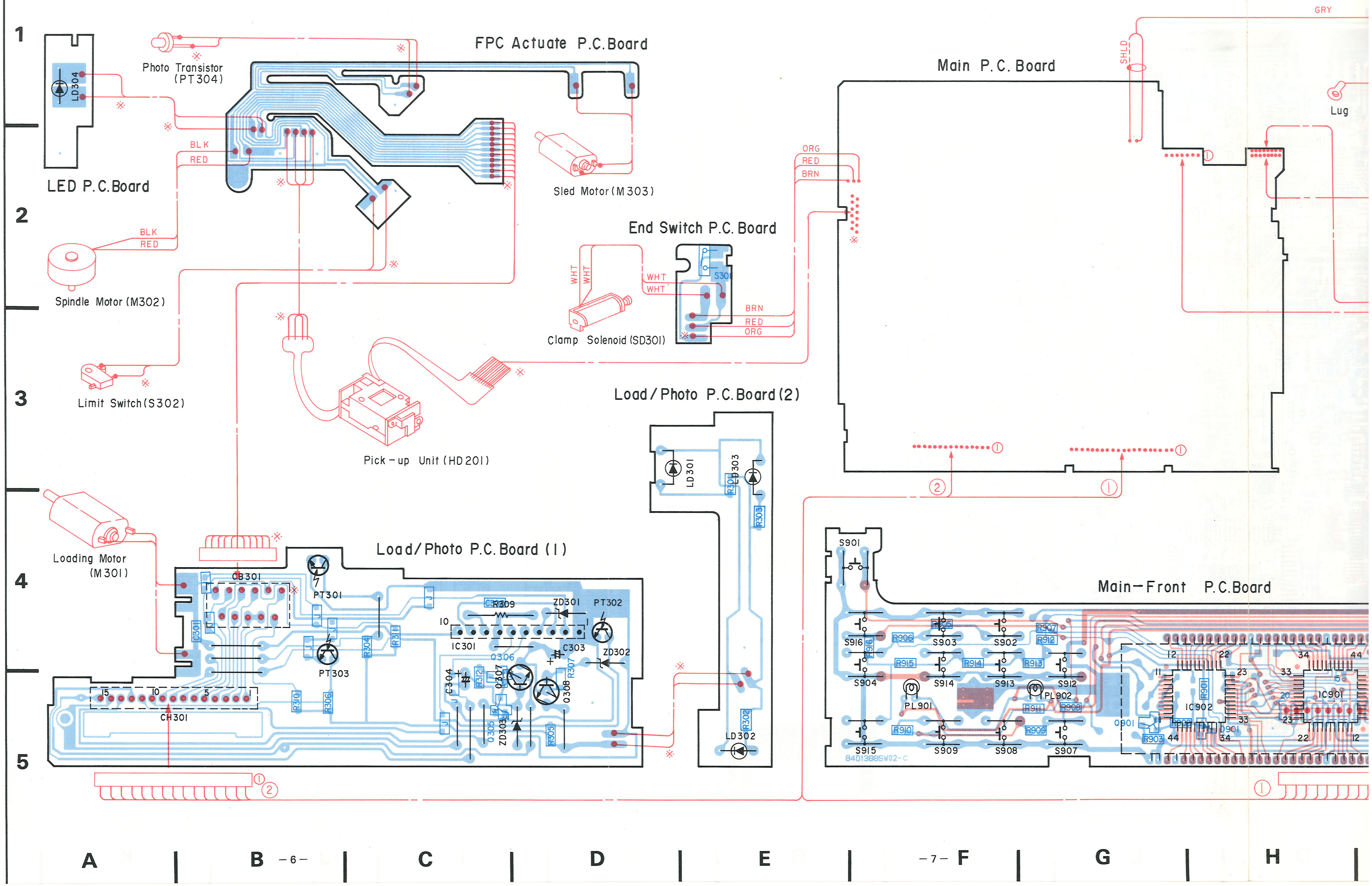
1	4V
2	1V
3	4V
4	0V
5	3V
6	1V
7	4V
8	4.6V

(Measuring Conditions)

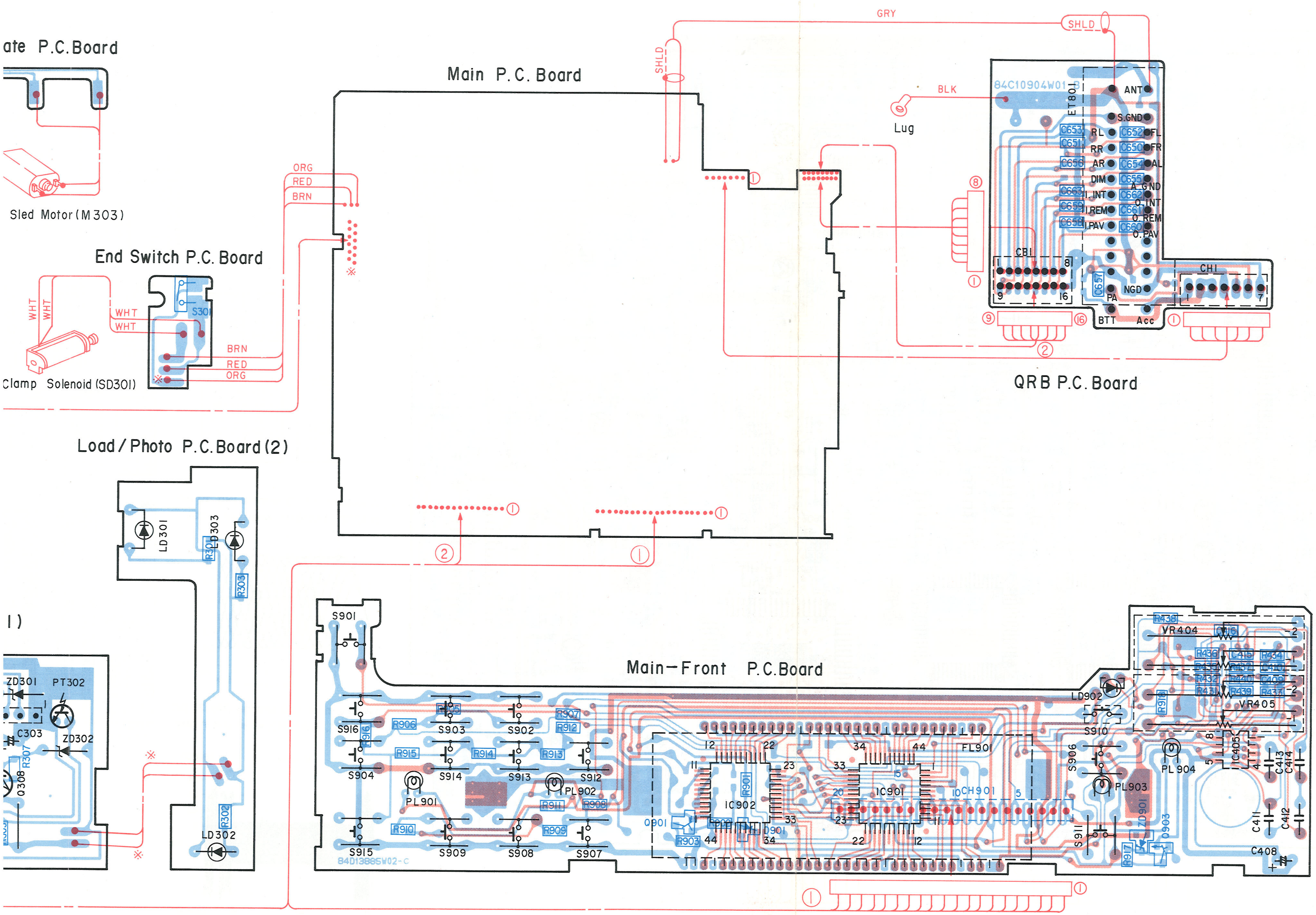
1. Power Supply: 14V DC
2. Measuring Tool: Digital Multi Voltmeter.
3. Measuring Standard: Ground=0V
4. Unit Condition: Be playing back the 2nd. Music of the test CD(YEDS-18).

BLU	Blue	YEL	Yellow
GRN	Green	PNK	Pink
BLK	Black	VIO	Violet
GRY	Gray	GRN/WHT	Green/White
WHT	White	GRY/WHT	Gray/White
RED	Red	GRY/YEL	Gray/Yellow
BRN	Brown	GRN/YEL	Green/Yellow
ORG	Orange	SHLD	Shield

Parts Layout on P.C. Boards and Wiring Diagram (2/2)


1
2
3
4
5
A
B
C
D
E
F
G
H
LED P.C. Board
LD304
Photo Transistor (PT304)
FPC Actuate P.C. Board
BLK
RED
Sled Motor (M303)
Spindle Motor (M302)
Limit Switch (S302)
End Switch P.C. Board
S301
WHT
WHT
BRN
RED
ORG
Clamp Solenoid (SD301)
Pick-up Unit (HD201)
Main P.C. Board
SHLD
GRY
Lug
ORG
RED
BRN
Load/Photo P.C. Board (2)
LD301
LD303
R301
R303
R302
LD302
Loading Motor (M301)
Load/Photo P.C. Board (1)
CB301
PT301
PT302
PT303
C301
C303
C304
R309
ZD301
ZD302
ZD303
IC301
10
Q305
Q306
Q307
Q308
R304
R305
R306
R307
R310
R311
R312
CH301
15
10
5
1
Main-Front P.C. Board
S901
S902
S903
S904
S907
S908
S909
S912
S913
S914
S915
S916
R906
R907
R908
R909
R910
R911
R912
R913
R914
R915
R916
R903
PL901
PL902
IC901
IC902
R901
Q901
D901
12
22
23
33
34
44
11
20
B4D13885W02-C
①
②

am (2/2)


ate P.C.Board
Sled Motor (M303)
End Switch P.C.Board
S301
WHT
WHT
WHT
WHT
BRN
RED
ORG
Clamp Solenoid (SD301)
Main P.C. Board
ORG
RED
BRN
SHLD
GRY
SHLD
BLK
Lug
84C10904W01
ET801
ANT
S.GND
RL
FL
RR
FR
AR
AL
DIM
A.GND
I.INT
O.INT
I.REM
O.REM
I.PAV
O.PAV
C653
C652
C651
C650
C656
C654
C655
C663
C662
C659
C661
C658
C660
C657
CB1
CH1
PA
NGD
BTT
Acc
QRB P.C. Board
Load/Photo P.C.Board (2)
LD301
LD303
R301
R303
R302
LD302
ZD301
PT302
C303
ZD302
R307
Q308
Main-Front P.C.Board
S901
S916
S903
S902
S904
S914
S913
S912
S915
S909
S908
S907
PL901
PL902
R905
R906
R907
R912
R915
R914
R913
R911
R908
R910
R909
R916
84D13885W02-C
IC902
IC901
FL901
CH901
R901
R903
D901
Q901
LD902
S910
S906
S911
PL903
PL904
ZD901
Q903
R917
R918
VR404
VR405
R438
C416
R436
C415
R434
R432
R437
C410
R440
C409
R431
R439
R433
IC405
C413
C414
C411
C412
C408

BLU ··········· Blue
GRN ··········· Green
BLK ··········· Black
GRY ··········· Gray
WHT ··········· White
RED ··········· Red
BRN ··········· Brown
ORG ··········· Orange
YEL ··········· Yellow
PNK ··········· Pink
VIO ··········· Violet
GRN/WHT ········ Green/White
GRY/WHT ········ Gray/White
GRY/YEL ········ Gray/Yellow
GRN/YEL ········ Green/Yellow
SHLD ··········· Shield

	E	C	B
Q305	0V	0V/13.9V	3.6V/0V
Q306	14V/0.7V	10.7V/0V	0V/13.9V
Q307	10.1V	14V	10.7V
Q308	5.1V/0V	10.1V/0V	5.8V/0V
Q901	0.7V	2V	1.4V
Q903	6.1V	7.4V	6.7V

IC301

1	0V
2	0V/6V
3	8V/0V
4	6V/0V
5	2V/0V
6	2V/0V
7	10V/0V
8	10V/0V
9	8V/0V
10	0V/6V

IC405

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.9V

IC901

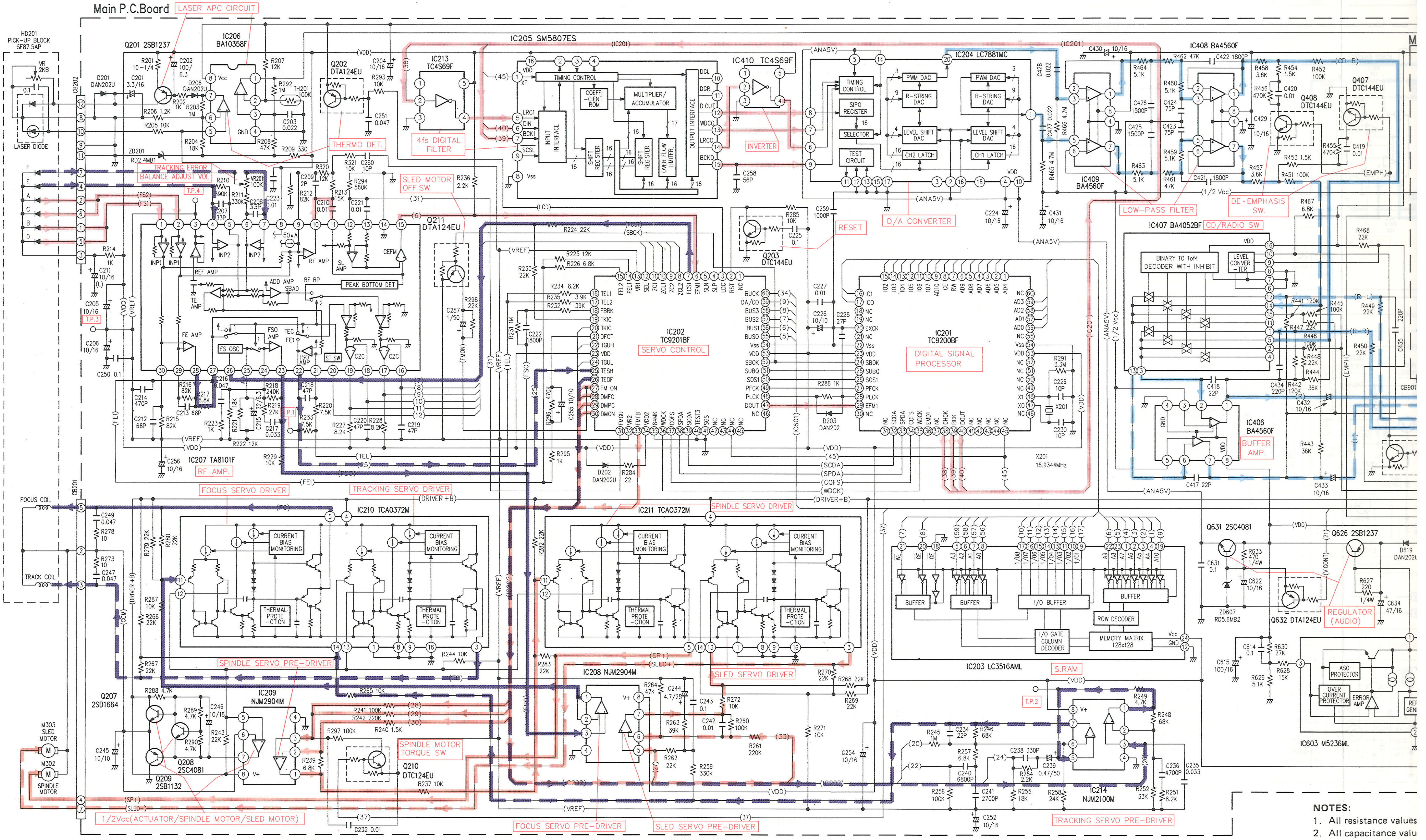
1		16		31	PS
2		17		32	
3		18		33	
4		19		34	
5		20		35	
6		21		36	
7		22		37	
8		23		38	
9		24		39	
10		25	PS	40	
11		26	0V	41	
12		27	5.2V	42	
13		28		43	
14		29	12.2V	44	
15		30	PS		

IC902

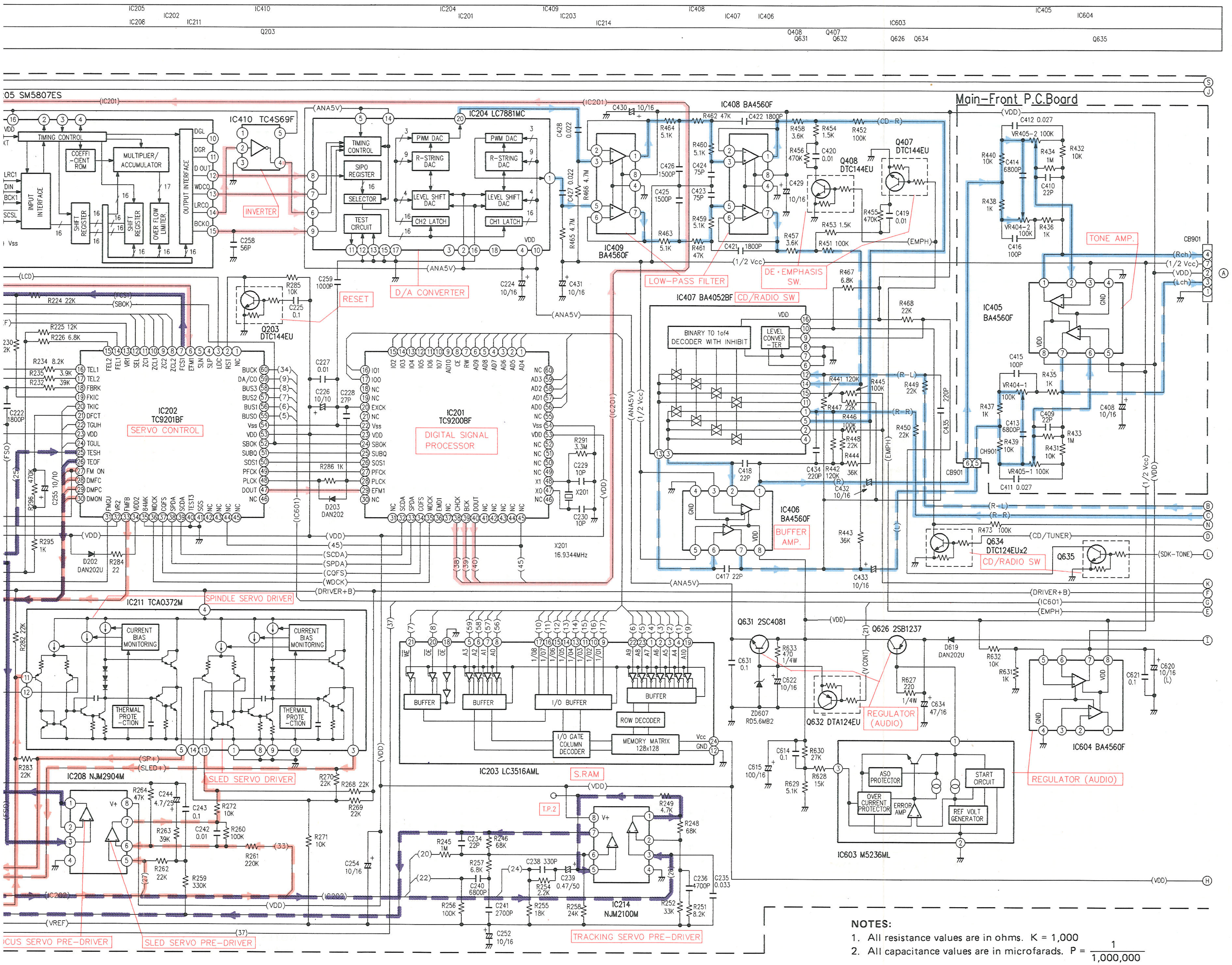
1		16		31	PS
2		17		32	
3		18		33	
4		19		34	
5		20		35	
6		21		36	
7		22		37	
8		23		38	
9		24		39	
10		25	PS	40	
11		26	0V	41	
12		27	5.2V	42	
13		28		43	
14		29	12.2V	44	
15		30			

Schematic Diagram (1/3)

	A	B	C	D	E	F	G	H
IC		IC206 IC207 IC209 IC210	IC213	IC205 IC208 IC202	IC211 IC410	IC204 IC201 IC409 IC203	IC214 IC408 IC407	IC406 IC603
Transistor (Q)		Q201 Q207 Q209 Q208	Q202 Q210 Q211		Q203			Q408 Q631 Q407 Q632 Q626 Q634


Main P.C.Board
LASER APC CIRCUIT
HD201 PICK-UP BLOCK SF87.5AP
LASER DIODE
Q201 2SB1237
IC206 BA10358F
Q202 DTA124EU
THERMO DET.
IC213 TC4S69F
4fs DIGITAL FILTER
IC205 SM5807ES
TIMING CONTROL
COEFFI-CIENT ROM
MULTIPLIER/ ACCUMULATOR
INPUT INTERFACE
SHIFT REGISTER
OVER FLOW LIMITER
OUTPUT INTERFACE
IC410 TC4S69F
INVERTER
IC204 LC7881MC
TIMING CONTROL
SIPO REGISTER
SELECTOR
TEST CIRCUIT
PWM DAC
R-STRING DAC
LEVEL SHIFT DAC
CH2 LATCH
CH1 LATCH
D/A CONVERTER
IC408 BA4560F
IC409 BA4560F
LOW-PASS FILTER
Q408 DTC144EU
Q407 DTC144EU
DE-EMPHASIS SW.
IC407 BA4052BF
CD/RADIO SW
BINARY TO 1of4 DECODER WITH INHIBIT
LEVEL CONVERTER
IC406 BA4560F
BUFFER AMP.
TRACKING ERROR BALANCE ADJUST VOL
T.P.4
T.P.3
T.P.1
T.P.2
SLED MOTOR OFF SW
Q211 DTA124EU
RESET
Q203 DTC144EU
IC207 TA8101F
RF AMP.
REF AMP
FE AMP
TE AMP
ADD AMP
SBAD
RF RP
PEAK BOTTOM DET
FS OSC
FSO AMP
TEC
FE1
TSO AMP
ST SW
CZC
SL AMP
CEFM
IC202 TC9201BF
SERVO CONTROL
IC201 TC9200BF
DIGITAL SIGNAL PROCESSOR
X201 16.9344MHz
D202 DAN202U
D203 DAN202
FOCUS SERVO DRIVER
TRACKING SERVO DRIVER
IC210 TCA0372M
IC211 TCA0372M
SPINDLE SERVO DRIVER
CURRENT BIAS MONITORING
THERMAL PROTE-CTION
SPINDLE SERVO PRE-DRIVER
SLED SERVO DRIVER
IC208 NJM2904M
IC209 NJM2904M
Q207 2SD1664
Q208 2SC4081
Q209 2SB1132
M303 SLED MOTOR
M302 SPINDLE MOTOR
FOCUS COIL
TRACK COIL
SPINDLE MOTOR TORQUE SW
Q210 DTC124EU
1/2Vcc(ACTUATOR/SPINDLE MOTOR/SLED MOTOR)
FOCUS SERVO PRE-DRIVER
SLED SERVO PRE-DRIVER
IC203 LC3516AML
S.RAM
BUFFER
I/O BUFFER
ROW DECODER
I/O GATE COLUMN DECODER
MEMORY MATRIX 128x128
IC214 NJM2100M
TRACKING SERVO PRE-DRIVER
Q631 2SC4081
Q626 2SB1237
Q632 DTA124EU
ZD607 RD5.6MB2
REGULATOR (AUDIO)
IC603 M5236ML
ASO PROTECTOR
OVER CURRENT PROTECTOR
ERROR AMP
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTES:
1. All resistance values
2. All capacitance valu


IC205 SM5807ES
IC410 TC4S69F
IC204 LC7881MC
IC408 BA4560F
IC409 BA4560F
Main-Front P.C.Board
IC405 BA4560F
IC407 BA4052BF
IC406 BA4560F
IC202 TC9201BF
SERVO CONTROL
IC201 TC9200BF
DIGITAL SIGNAL PROCESSOR
Q203 DTC144EU
Q407 DTC144EU
Q408 DTC144EU
Q634 DTC124EUx2
Q635
INVERTER
RESET
D/A CONVERTER
LOW-PASS FILTER
DE-EMPHASIS SW.
TONE AMP.
CD/RADIO SW
BUFFER AMP.
TIMING CONTROL
MULTIPLIER/ACCUMULATOR
COEFFICIENT ROM
INPUT INTERFACE
OUTPUT INTERFACE
SHIFT REGISTER
OVER FLOW LIMITER
SIPO REGISTER
SELECTOR
TEST CIRCUIT
PWM DAC
R-STRING DAC
LEVEL SHIFT DAC
CH2 LATCH
CH1 LATCH
BINARY TO 1of4 DECODER WITH INHIBIT
LEVEL CONVERTER
IC211 TCA0372M
SPINDLE SERVO DRIVER
CURRENT BIAS MONITORING
THERMAL PROTECTION
IC208 NJM2904M
SLED SERVO DRIVER
FOCUS SERVO PRE-DRIVER
SLED SERVO PRE-DRIVER
IC203 LC3516AML
S.RAM
BUFFER
I/O BUFFER
ROW DECODER
I/O GATE COLUMN DECODER
MEMORY MATRIX 128x128
T.P.2
IC214 NJM2100M
TRACKING SERVO PRE-DRIVER
Q631 2SC4081
Q626 2SB1237
Q632 DTA124EU
ZD607 RD5.6MB2
D619 DAN202U
REGULATOR (AUDIO)
IC603 M5236ML
ASO PROTECTOR
OVER CURRENT PROTECTOR
ERROR AMP
START CIRCUIT
REF VOLT GENERATOR
IC604 BA4560F
X201 16.9344MHz
D202 DAN202U
D203 DAN202
CB901
CH901

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

IC201

1	PS	11	PS	21	0V	31	0V	41	PS	51	5V
2	PS	12	PS	22	0V	32	PS	42	PS	52	5V
3	PS	13	PS	23	5V	33	PS	43	PS	53	5V
4	PS	14	PS	24	5V	34	PS	44	PS	54	0V
5	PS	15	PS	25	PS	35	PS	45	PS	55	5V
6	PS	16	PS	26	PS	36	5V	46	0V	56	PS
7	PS	17	PS	27	PS	37	0V	47	PS	57	PS
8	PS	18	5V	28	PS	38	PS	48	PS	58	PS
9	PS	19	5V	29	PS	39	PS	49	5V	59	PS
10	PS	20	0V	30	0V	40	PS	50	5V	60	PS

IC203

1	PS	13	PS
2	PS	14	PS
3	PS	15	PS
4	PS	16	PS
5	PS	17	PS
6	PS	18	0V
7	PS	19	PS
8	PS	20	PS
9	PS	21	PS
10	PS	22	PS
11	PS	23	PS
12	0V	24	5V

IC202

1	PS	11	PS	21	PS	31	0V/PS	41	0V	51	PS
2	5V/0V	12	2.2V	22	2.2V	32	0V/4.9V	42	PS	52	PS
3	5V/0V	13	2.2V	23	5V	33	0V/4.2V	43	PS	53	PS
4	PS	14	2.2V	24	2.2V	34	PS	44	PS	54	4.9V/0V
5	PS	15	2.2V	25	2.2V	35	4.9V	45	5V	55	4.5V/0V
6	PS	16	2.2V	26	2.2V	36	4.9V/0V	46	5V	56	4.3V/0V
7	2.2V	17	2.2V	27	2V	37	0V/4.9V	47	PS	57	4.3V/0V
8	1V	18	2.2V	28	PS	38	4.9V/0V	48	PS	58	4.9V
9	PS	19	2.6V	29	PS	39	4.8V/0V	49	PS	59	4.9V
10	1V	20	2V	30	2.2V	40	4.8V/0V	50	PS	60	0V

IC204

1	2.3V	11	1.2V
2	2.3V	12	0V
3	2.3V	13	0V
4	2.3V	14	2.3V
5	2.3V	15	0V
6	0V	16	0V
7	0V	17	0V
8	0V	18	0V
9	0.4V	19	0V
10	2.3V	20	1.5V

IC205

1	PS	9	5V
2	PS	10	PS
3	5V	11	PS
4	PS	12	PS
5	PS	13	PS
6	0V	14	PS
7	PS	15	PS
8	0V	16	5V

IC206

1	0.6V
2	5V
3	2.6V
4	0V
5	0.2V/0V
6	0.2V
7	2.8V
8	5V

IC207

1	2V	11	2.2V	21	2.2V
2	2V	12	2.2V	22	2.2V
3	2.2V	13	2.2V	23	2.2V
4	2V	14	0V	24	2.2V
5	2V	15	PS	25	2.2V
6	2V	16	1V	26	2.8V
7	2V	17	PS	27	2.2V
8	5V	18	1V	28	2.2V
9	2V	19	PS	29	2.2V
10	2V	20	2.5V	30	2.2V

IC208

1	2.2V
2	2.2V
3	2.2V
4	0V
5	2.2V
6	2.2V
7	2.2V
8	5V

IC209

1	2.5V
2	2.5V
3	2.5V
4	0V
5	4.1V
6	4.1V
7	3.5V
8	8V

IC210

1	0V	9	0V
2	0V	10	0V
3	4.5V	11	4V
4	8V	12	4V
5	4V	13	4V
6	0V	14	4V
7	0V	15	0V
8	0V	16	0V

IC211

1	0V	9	0V
2	0V	10	0V
3	2.5V	11	4V
4	8V	12	4V
5	4V	13	4V
6	0V	14	4V
7	0V	15	0V
8	0V	16	0V

IC213

1	0V
2	PS
3	0V
4	PS
5	5V

IC214

1	2.2V
2	2.2V
3	2.2V
4	0V
5	2.2V
6	2.2V
7	2.2V
8	5V

IC405

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.9V

IC406

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC407

1	4.4V	9	0V
2	4.4V	10	0V
3	4.4V	11	0V
4	0V	12	4.4V
5	3.5V	13	4.4V
6	0V	14	4.4V
7	0V	15	1.1V
8	0V	16	8.9V

IC408

1	4.7V
2	4.7V
3	4.6V
4	0V
5	1.3V
6	4.7V
7	4.7V
8	8.9V

IC409

1	4.7V
2	4.7V
3	3.1V
4	0V
5	3.1V
6	4.7V
7	4.7V
8	8.7V

IC410

1	0V
2	PS
3	0V
4	PS
5	5V

IC603

1	13.5V
2	0V
3	1.3V

IC604

1	8.2V
2	0.4V
3	2.4V
4	0V
5	4.3V
6	4.4V
7	4.4V
8	8.7V

	E	C	B
Q201	3.6V	1.9V	3V
Q202	5.2V	0.3V	5.1V
Q203	0V	2.2V	0V
Q210	2.2V/2.2V	2.3V/2.3V	4.8V/0V
Q407	0V	SIG	0V
Q408	0V	SIG	0V
Q626	14.1V	8.7V	13.5V
Q631	2.4V	8.7V	3V
Q632	3V	0V	0V
Q634	0V	8.7V	0V
Q211	2.3V	2.3V	5V
Q635			

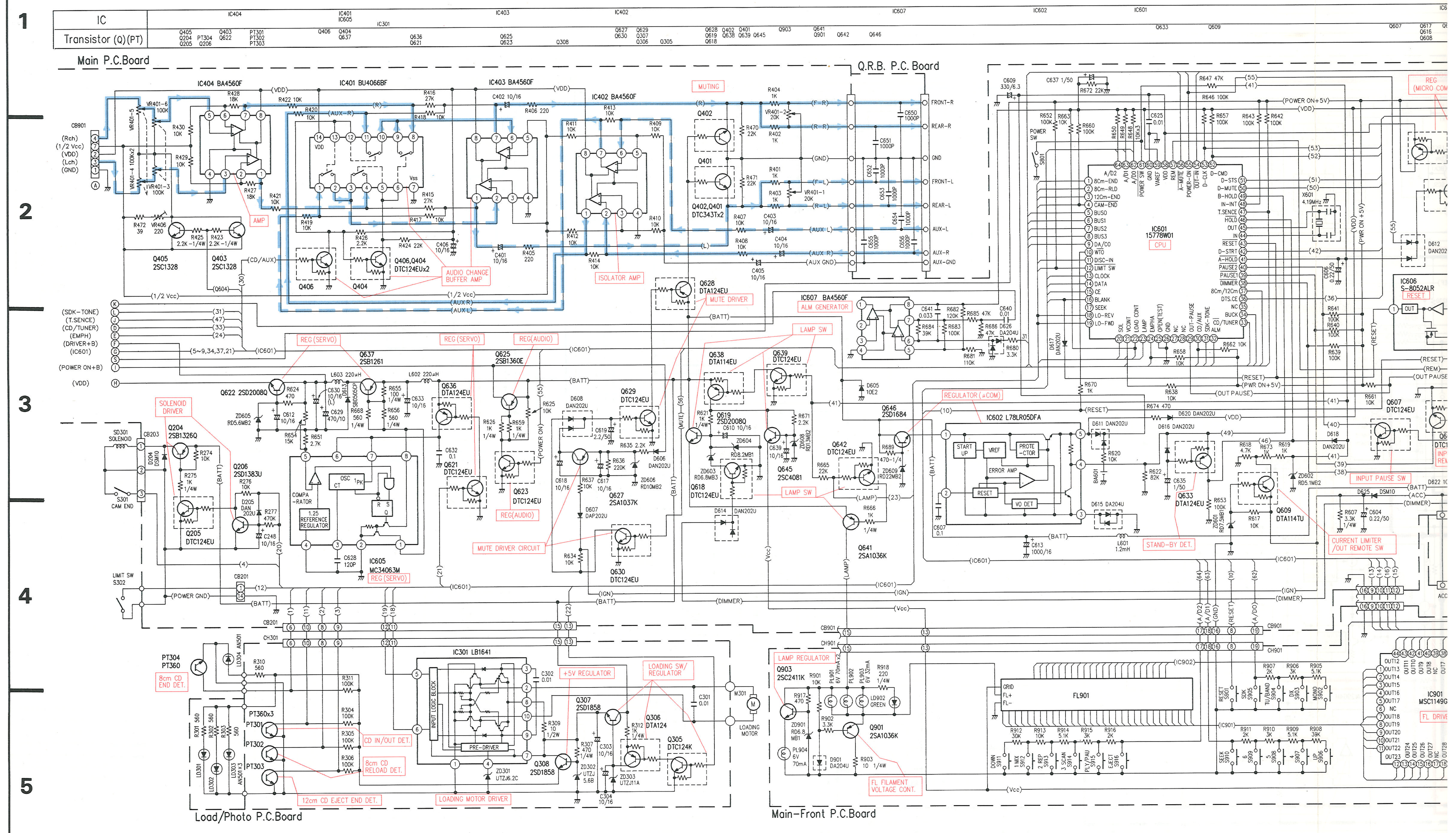
	E	C	B
Q207	4.1V	8.3V	4.7V
Q208	3.5V	4.7V	4.1V
Q209	0V	4.1V	3.5V

▬	CD signal line (Digital)
▬ ▬	L–ch signal line
▬	R–ch signal line
▬	Focus servo signal line
▬ ▬	Tracking servo signal line
▬	Spindle servo signal line
▬ ▬	Sled servo signal line

[Measuring Conditions]

1. Power Supply: 14V DC
2. Measuring Tool: Digital Multi Voltmeter.
3. Measuring Standard: Ground=0V
4. Unit Condition: Be playing back the 2nd.
   Music of the test CD(YEDS–18).

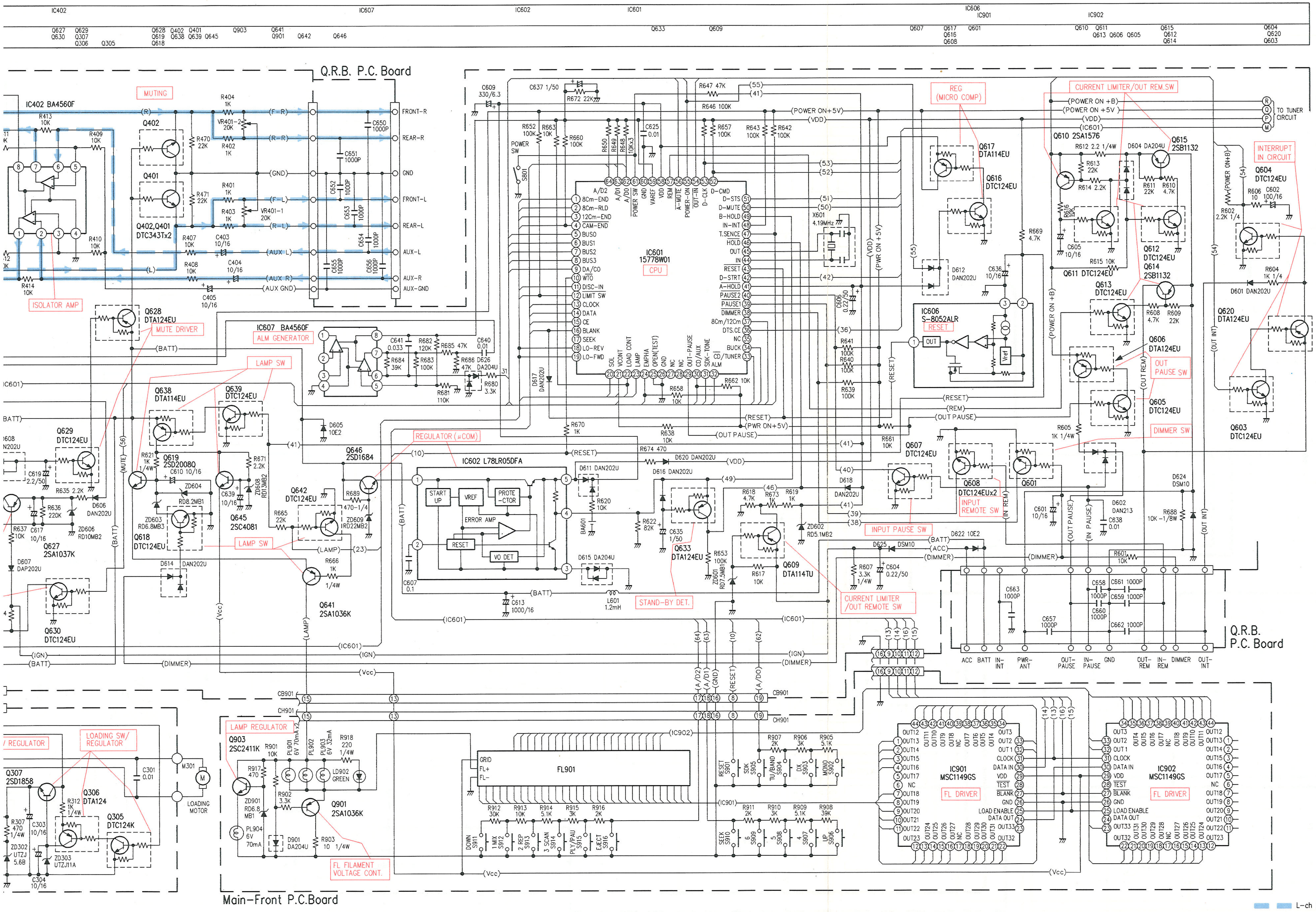
Schematic Diagram (2/3)


1
2
3
4
5
IC
Transistor (Q)(PT)
Main P.C.Board
Q.R.B. P.C. Board
Load/Photo P.C.Board
Main-Front P.C.Board
IC404 BA4560F
IC401 BU4066BF
IC403 BA4560F
IC402 BA4560F
IC607 BA4560F
IC601 15778W01
CPU
IC605 MC34063M
IC602 L78LR05DFA
IC301 LB1641
IC606 S-8052ALR
IC901 MSC1149G
FL901
AMP
AUDIO CHANGE BUFFER AMP
ISOLATOR AMP
MUTING
MUTE DRIVER
ALM GENERATOR
LAMP SW
REG (SERVO)
REG(AUDIO)
SOLENOID DRIVER
MUTE DRIVER CIRCUIT
REGULATOR (μCOM)
STAND-BY DET.
CURRENT LIMITER /OUT REMOTE SW
INPUT PAUSE SW
RESET
8cm CD END DET.
CD IN/OUT DET.
8cm CD RELOAD DET.
12cm CD EJECT END DET.
LOADING MOTOR DRIVER
+5V REGULATOR
LOADING SW/ REGULATOR
LAMP REGULATOR
FL FILAMENT VOLTAGE CONT.
FL DRIVE
LOADING MOTOR
FRONT-R
REAR-R
GND
FRONT-L
REAR-L
AUX-L
AUX-R
AUX-GND
CB901
SD301 SOLENOID
S301 CAM END
LIMIT SW S302
PT304 PT360
PT360x3
M301

NOTES:
1. All resistance values are in ohms. K = 1,000

2. Al

A | B | C | D | E | F | G | H


IC402
IC607
IC602
IC601
IC606
IC901
IC902
Q.R.B. P.C. Board
IC402 BA4560F
MUTING
ISOLATOR AMP
MUTE DRIVER
Q402,Q401 DTC343Tx2
IC607 BA4560F
ALM GENERATOR
LAMP SW
REGULATOR (μCOM)
IC602 L78LR05DFA
IC601 15778W01
CPU
REG (MICRO COMP)
CURRENT LIMITER/OUT REM.SW
INTERRUPT IN CIRCUIT
TO TUNER CIRCUIT
IC606 S-8052ALR
RESET
OUT PAUSE SW
DIMMER SW
INPUT REMOTE SW
INPUT PAUSE SW
STAND-BY DET.
CURRENT LIMITER /OUT REMOTE SW
LAMP REGULATOR
FL FILAMENT VOLTAGE CONT.
FL901
IC901 MSC1149GS
FL DRIVER
IC902 MSC1149GS
LOADING SW/ REGULATOR
LOADING MOTOR
Q.R.B. P.C. Board
Main-Front P.C.Board

	E	C	B		E	C	B
Q636	14.2V	14.1V	0V	Q629	0V	14V	0V
Q637	13.8V	PS	PS	Q630	0V	0V	4.3V
Q638	14V	13.1V	0V	Q633	5.7V	4.5V	5.7V
Q639	0V	0V	5V	PT301	0V	5V/0V	–
Q628	14V	0.3V	14V	PT302	0V	5V/0V	–
Q641	7.6V	7.4V	6.8V	PT303	0V	5V/0V	–
Q642	0V	0.2V	2.2V	PT304	0V	5V/0V	–
Q645	12.2V	13.3V	12.9V	Q305	0V	0V/13.9V	3.6V/0V
Q601	0V/0V	4.8V/0V	0V/8.1V	Q307	10.1V	14V	10.7V
Q605	0V	0V	3.8V	Q308	5.1V/0V	10.1V/0V	5.8V/0V
Q606	14V	14V	0V	Q401	0V	0V	0.2V
Q607	0V/0V	4.7V/0V	0V/14.4V	Q402	0V	0V	0.2V
Q608	0V/0V	4.7V/0V	0V/14.4V	Q404	0V	8.7V	0V
Q609	14.2V	14.2V	7.3V	Q901	0.7V	2V	1.4V
Q610	14V	14V	13.3V	Q903	6.1V	7.4V	6.7V
Q611	0V	0V	10V	Q204	14V	0V	3.4V
Q612	0V	0V	9.7V	Q205	0V	14V	0V
Q613	0V	0.1V	4.3V	Q206	0V	0V	0V
Q614	14V	14V	13.3V	Q406	0V	0V	3.5V
Q615	14V	14V	13.4V	Q306	14V/0.7V	10.7V/0V	0V/13.9V
Q616	0V	0V	4.5V	Q647	0V	0V/14.4V	0V/5V
Q617	5.1V	4.9V	0V	Q403	0V	0V	1V
Q618	0V	4V	0V	Q405	0V	0V	1V
Q619	7.6V	14V	8.2V	Q603	0V	14V	4.9V
Q621	0V	0V	3.9V	Q604	0V	14V	0V
Q922	5.1V	8.3V	5.7V	Q620	14V	0V	14V
Q623	0V	0.4V	3.3V	Q646	14V	14V	13.5V
Q625	14.1V	14.1V	13.4V				
Q627	10V	0.3V	10V				

IC602

1	14V
2	7.8V
3	0.6V
4	5.7V
5	5.7V

IC401

1	4.4V	6	8.7V	11	4.4V
2	4.4V	7	0V	12	0V
3	4.4V	8	4.4V	13	0V
4	4.4V	9	4.4V	14	8.7V
5	8.7V	10	4.4V		

IC301

1	0V
2	0V/6V
3	8V/0V
4	6V/0V
5	2V/0V
6	2V/0V
7	10V/0V
8	10V/0V
9	8V/0V
10	0V/6V

IC901

1		16		31	PS
2		17		32	
3		18		33	
4		19		34	
5		20		35	
6		21		36	
7		22		37	
8		23		38	
9		24		39	
10		25	PS	40	
11		26	0V	41	
12		27	5.2V	42	
13		28		43	
14		29	12.2V	44	
15		30	PS		

IC607

1	4V
2	1V
3	4V
4	0V
5	3V
6	1V
7	4V
8	4.6V

IC402

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC902

1		16		31	PS
2		17		32	
3		18		33	
4		19		34	
5		20		35	
6		21		36	
7		22		37	
8		23		38	
9		24		39	
10		25	PS	40	
11		26	0V	41	
12		27	5.2V	42	
13		28		43	
14		29	12.2V	44	
15		30			

IC403

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.9V

IC606

1	5V/0V
2	5V
3	0V

IC404

1	4.4V
2	4.4V
3	4.4V
4	0V
5	4.4V
6	4.4V
7	4.4V
8	8.7V

IC605

1	PS
2	0V
3	PS
4	0V
5	1.3V
6	13.9V
7	13.9V
8	PS

IC601

1	0V/5V	23	2.2V/0V	45	PS
2	0V/5V	24	3.6V/0V	46	4.6V/0V
3	0V/5V	25	0V	47	0V/5V
4	0V/5V	26	0V	48	4.6V/0V
5	PS	27	0V	49	5V/0V
6	PS	28	0V	50	4.9V/0V
7	PS	29	3.6V/0V	51	PS
8	PS	30	3.6V/0V	52	PS
9	PS	31	0V/PS	53	PS
10	4.8V	32	0V/4.9V	54	4.9V/0V
11	0V/5V	33	0V/4.2V	55	4.5V/0V
12	4.8V/0V	34	PS	56	4.3V/0V
13	PS	35	4.9V	57	4.3V/0V
14	PS	36	4.9V/0V	58	4.9V
15	PS	37	0V/4.9V	59	4.9V
16	5V/0V	38	4.9V/0V	60	0V
17	0V/5V	39	4.8V/0V	61	0V/4.9V
18	0V/5V	40	4.8V/0V	62	–
19	0V/5V	41	5V/0V	63	–
20	0V/5V	42	0V/PS	64	–
21	3.9V/0V	43	5V/0V		
22	0V/5V	44	PS		

62,63,64
1/6 VDD,2/6 VDD,3/6 VDD,4/6 VDD,5/6 VDD ,VDD

<Measuring Conditions>
1. Power Supply:14V DC
2. Measuring Tool:Digital Multi Voltmeter.
3. Measuring Standard:Ground=0V
4. Unit Condition:Be Playing back the 2nd.
Music of the test CD(YEDS-18).

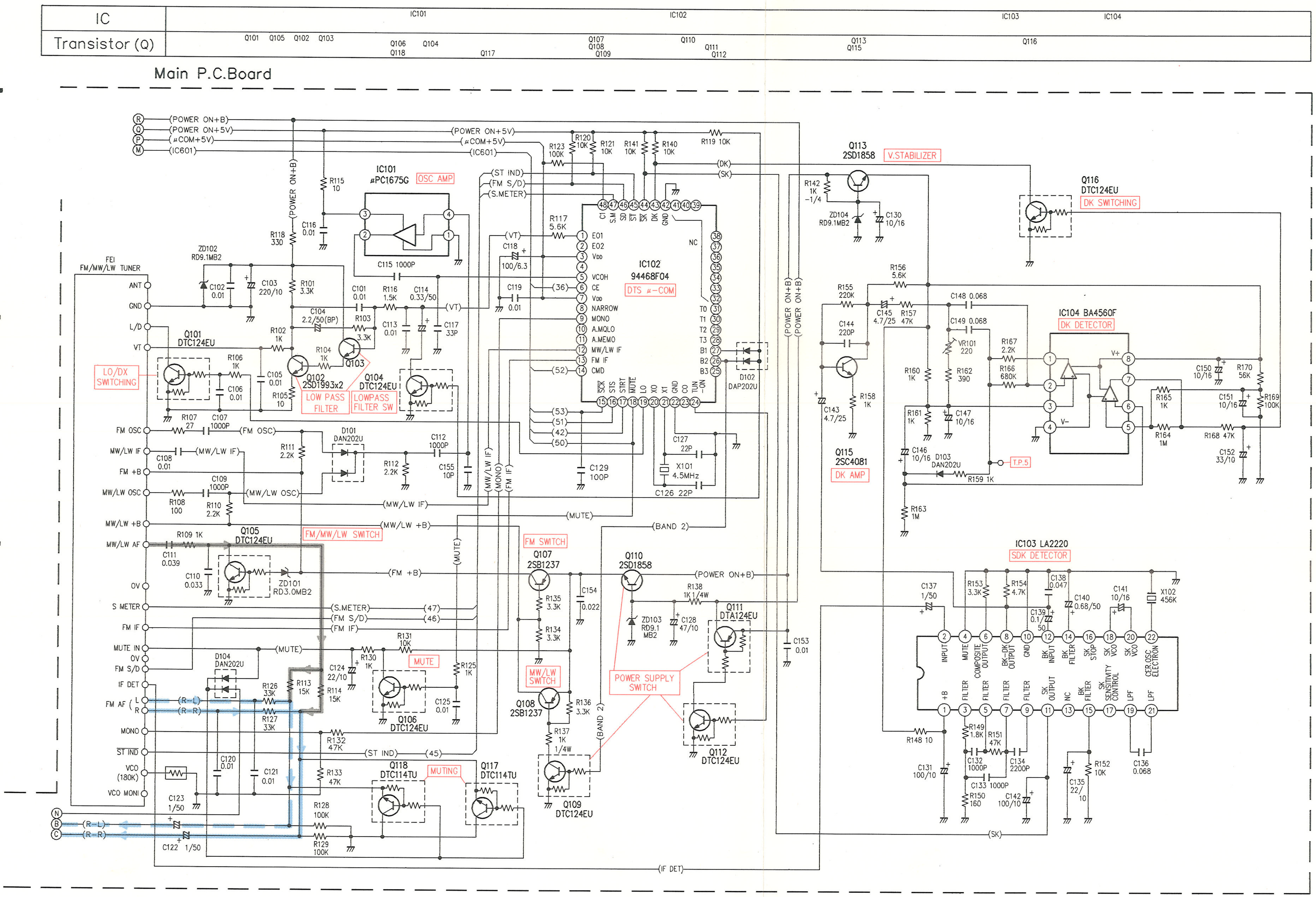
▬ ▬ L-ch Signal Line
▬▬ R-ch Signal Line

NOTES:

1. All resistance values are in ohms. K = 1,000

2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

Schematic Diagram (3/3)


IC
Transistor (Q)
IC101
IC102
IC103
IC104
Q101 Q105 Q102 Q103
Q106 Q118 Q104
Q117
Q107 Q108 Q109
Q110
Q111 Q112
Q113 Q115
Q116
Main P.C.Board
1
2
3
4
5
A
B
C
D
E
F
G
H
(POWER ON+B)
(POWER ON+5V)
(μCOM+5V)
(IC601)
FEI FM/MW/LW TUNER
ANT
GND
L/D
VT
FM OSC
MW/LW IF
FM +B
MW/LW OSC
MW/LW +B
MW/LW AF
OV
S METER
FM IF
MUTE IN
OV
FM S/D
IF DET
FM AF L
R
MONO
ST IND
VCO (180K)
VCO MONI
IC101 μPC1675G
OSC AMP
IC102 94468F04
DTS μ-COM
IC103 LA2220
SDK DETECTOR
IC104 BA4560F
DK DETECTOR
Q101 DTC124EU
LO/DX SWITCHING
Q102 2SD1993x2
LOW PASS FILTER
Q103
Q104 DTC124EU
LOWPASS FILTER SW
Q105 DTC124EU
FM/MW/LW SWITCH
Q106 DTC124EU
MUTE
Q107 2SB1237
FM SWITCH
Q108 2SB1237
MW/LW SWITCH
Q109 DTC124EU
Q110 2SD1858
POWER SUPPLY SWITCH
Q111 DTA124EU
Q112 DTC124EU
Q113 2SD1858
V.STABILIZER
Q115 2SC4081
DK AMP
Q116 DTC124EU
DK SWITCHING
Q117 DTC114TU
Q118 DTC114TU
MUTING
ZD101 RD3.0MB2
ZD102 RD9.1MB2
ZD103 RD9.1MB2
ZD104 RD9.1MB2
D101 DAN202U
D102 DAP202U
D103 DAN202U
D104 DAN202U
X101 4.5MHz
X102 456K
VR101 220
T.P.5
(ST IND)
(FM S/D)
(S.METER)
(VT)
(MUTE)
(BAND 2)
(DK)
(SK)
(IF DET)
(POWER ON+B)
(FM +B)
(MW/LW +B)
(MW/LW IF)
(MW/LW OSC)
(FM OSC)
(R-L)
(R-R)
E01 E02 VDD VCOH CE VDD NARROW MONO A.MQLO A.MEMO MW/LW IF FM IF CMD
T0 T1 T2 T3 B1 B2 B3 NC
INPUT MUTE COMPOSITE OUTPUT BK-DK OUTPUT GND BK INPUT BK FILTER SK STOP SK VCO SK VCO CER.OSC ELECTRON
+B FILTER FILTER FILTER FILTER SK OUTPUT NC BK FILTER SK SENSITIVITY CONTROL LPF LPF

▬	MW/LW Signal Line
▬ ▬	L-ch Signal Line
▬	R-ch Signal Line

IC101

1	0V
2	3.7V
3	1.5V
4	1V

	E	C	B
Q101	0V	6.6V/0V	4.7V/0V
Q102	0.1V	1.1V~7.4V	0.7V
Q103	0.7V	9.4V	1.1V
Q104	0V	0V	0.8V
Q105	0V	0V	6.7V/0V
Q106	0V	0V/7.7V	0V/4.7V
Q107	8.8V	8.7V/0V	8.8V/8.1V
Q108	8.8V	8.8V/1.4V	8.6V/8.1V
Q109	0V	8.6V/0V	4.4V/1V
Q110	8.8V	14V	9.4V
Q111	0V/13V	13.9V/0V	0V/14V
Q112	0V	0V/13V	5.1V/0V
Q113	8.6V	13.7V	9.2V
Q115	1V	2.9V	1.6V
Q116	0V	3.3V	0.6V
Q117	4.1V	4.1V	4.9V
Q118	4.1V	4.1V	4.9V

IC102

1	1.2V	25	0V
2	0V	26	4.5V/1V
3	5V	27	1V/5V
4	0V	28	0V
5	2V	29	0V
6	5V/0V	30	0V
7	5V/0V	31	0V
8	5V/0V	32	0V
9	0V	33	0V
10	0V	34	5V/0V
11	0V	35	PS
12	0V/PS	36	PS
13	0V	37	PS
14	0V/PS	38	0V/PS
15	PS	39	0V
16	PS	40	0V
17	PS	41	0V
18	5V/0V	42	0V
19	0V/5V	43	
20	PS	44	
21	PS	45	4V/0V
22	0V	46	4V/0V
23	0V	47	0V
24	5V	48	5V

IC103

1	8.3V
2	2.1V
3	2.1V
4	0V
5	2.1V
6	1.4V
7	2.1V
8	2.6V
9	3V
10	0V
11	0.6V
12	2.9V
13	2.9V
14	2.9V
15	2.4V
16	0V
17	0V
18	3.1V
19	3V
20	3V
21	3V
22	4.1V

IC104

1	4.2V	5	5.2V
2	4.2V	6	5.2V
3	4.2V	7	1.3V
4	0V	8	8.6V

(Measuring Conditions)

1. Power Supply: 14V DC
2. Measuring Tool: Digital Multi Voltmeter.
3. Measuring Standard: Ground=0V
4. Unit Condition: Be playing back the 2nd. Music of the test CD(YEDS-18).

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Electrical Parts List

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.
uF = microfarads, pF = picofarads

Abbreviations

RES. = Resistor
C.F. = Carbon Film
M.F. = Metal Film
M.O. = Metal Oxide Film
M.P. = Metal Plate
TR. = Transistor
TRANS. = Transformer
CP. = Chip
CAP. = Capacitor
ELY. = Electrolytic
CER. = Ceramic
MYL. = Mylar
TAN. = Tantalum
POLY. = Polystyrol
PP. = Polypropylene
PLT. = Polyethylene

Symbol No.	Part No.	Description		
Main P. C. Board				
IC's				
IC101	51T96030F01	μ PC1675G		
IC102	51T94468F04	94468F04		
IC103	51T69141F01	LA2220		
IC104	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC201	51T15260W01	TC9200BF		
IC202	51T15261W01	TC9201BF		
IC203	51T84723F02	LC3516AML		
or	51T15420W01	TC5517FL		
or	51T90640F01	CXK5816M		
IC204	51T15266W01	LC7881MC		
IC205	51T15265W03	SM5807ES		
IC206	51T92693F01	BA10358F		
IC207	51T15262W01	TA8101F		
IC208	51T93333F01	NJM2904M		
IC209	51T93333F01	NJM2904M		
IC210	51T15264W01	TCA0372M		
IC211	51T15264W01	TCA0372M		
IC213	51T93532F01	TC4S69F		
IC214	51T16025W01	NJM2100M		
IC401	51T68999F03	BU4066BF		
IC402	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC403	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC404	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC406	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC407	51T15270W01	BU4052BF		
IC408	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC409	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC410	51T93532F01	TC4S69F		
IC601	51T15778W01	15778W01		
or	51T15263W01	15263W01		
IC602	51T15268W03	L78LR05FA		
IC603	51T90890F01	M5236ML		
IC604	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC605	51T15510W01	MC34063M		
IC606	51T92166F01	S-8052ALR		
IC607	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
Transistors				
Q101	48T94606F03	CP., DTC124EU		
Q102	48T90181F05	2SD1993		
Q103	48T90181F05	2SD1993		
Q104	48T94606F03	CP., DTC124EU		
Q105	48T94606F03	CP., DTC124EU		
Q106	48T94606F03	CP., DTC124EU		
Q107	48T83417F03	2SB1237		
Q108	48T83417F03	2SB1237		
Q109	48T94606F03	CP., DTC124EU		
Q110	48T83415F03	2SD1858		
Q111	48T94606F53	CP., DTA124EU		
Q112	48T94606F03	CP., DTC124EU		
Q113	48T83415F03	2SD1858		
Q115	48T94582F01	CP., 2SC4081		
Q116	48T94606F03	CP., DTC124EU		
Q117	48T94606F05	CP., DTC114TU		
Q118	48T94606F05	CP., DTC114TU		
Q201	48T83417F03	2SB1237		
Q202	48T94606F53	CP., DTA124EU		
Q203	48T94606F01	CP., DTC144EU		
Q204	48T15287W03	2SB1326Q		
Q205	48T94606F03	CP., DTC124EU		
Q206	48T81552F01	CP., 2SD1383K		
Q207	48T80614F01	CP., 2SD1664		
Q208	48T94582F01	CP., 2SC4081		
Q209	48T80611F01	CP., 2SB1132		
Q210	48T94606F03	CP., DTC124EU		
Q211	48T94606F53	CP., DTA124EU		
Q401	48T62967F33	CP., DTC343T		
Q402	48T62967F33	CP., DTC343T		
Q403	48T63788F01	CP., 2SD1328		
Q404	48T94606F03	CP., DTC124EU		
Q405	48T63788F01	CP., 2SD1328		
Q406	48T94606F03	CP., DTC124EU		
Q407	48T94606F01	CP., DTC144EU		

Symbol No.	Part No.	Description		
Q408	48T94606F01	CP., DTC144EU		
Q601	48T94606F03	CP., DTC124EU		
Q603	48T94606F03	CP., DTC124EU		
Q604	48T94606F03	CP., DTC124EU		
Q605	48T94606F03	CP., DTC124EU		
Q606	48T94606F53	CP., DTA124EU		
Q607	48T94606F03	CP., DTC124EU		
Q608	48T94606F03	CP., DTC124EU		
Q609	48T94606F55	CP., DTA114TU		
Q610	48T94581F01	CP., 2SA1576		
Q611	48T94606F03	CP., DTC124EU		
Q612	48T94606F03	CP., DTC124EU		
Q613	48T94606F03	CP., DTC124EU		
Q614	48T80611F01	CP., 2SB1132		
Q615	48T80611F01	CP., 2SB1132		
Q616	48T94606F03	CP., DTC124EU		
Q617	48T94606F56	CP., DTA114EU		
Q618	48T94606F03	CP., DTC124EU		
Q619	48T15289W03	2SD2008Q		
Q620	48T94606F53	CP., DTA124EU		
Q621	48T94606F03	CP., DTC124EU		
Q622	48T15289W03	2SD2008Q		
Q623	48T94606F03	CP., DTC124EU		
Q625	48T15701W02	2SB1360E		
Q626	48T83417F03	2SB1237		
Q627	48T63420F01	CP., 2SA1037K		
Q628	48T94606F53	CP., DTA124EU		
Q629	48T94606F03	CP., DTC124EU		
Q630	48T94606F03	CP., DTC124EU		
Q631	48T94582F01	CP., 2SC4081		
Q632	48T94606F53	CP., DTA124EU		
Q633	48T94606F53	CP., DTA124EU		
Q634	48T94606F03	CP., DTC124EU		
Q635	48T94606F03	CP., DTC124EU		
Q636	48T94606F53	CP., DTA124EU		
Q637	48T15511W02	CP., 2SB1261		
Q638	48T94606F56	CP., DTA114EU		
Q639	48T94606F03	CP., DTC124EU		
Q641	48T63419F01	CP., 2SA1036K		
Q642	48T94606F03	CP., DTC124EU		
Q645	48T94582F01	CP., 2SC4081		
Q646	48T80614F01	2SD1664		
Diodes				
D101	48T94608F03	CP., DAN202U		
D102	48T94608F02	CP., DAP202U		
D103	48T94608F03	CP., DAN202U		
D104	48T94608F03	CP., DAN202U		
D201	48T94608F03	CP., DAN202U		
D202	48T94608F03	CP., DAN202U		
D203	48T94608F03	CP., DAN202U		
D204	48T15512W01	CP., DSM10		
D205	48T94608F03	CP., DAN202U		
D206	48T94608F03	CP., DAN202U		
D601	48T94608F03	CP., DAN202U		
D602	48T15290W01	DAN213		
D604	48T94608F01	CP., DA204U		
D605	48C40235G02	10E2		
D606	48T94608F03	CP., DAN202U		
D607	48T94608F02	CP., DAP202U		
D608	48T94608F03	CP., DAN202U		
D611	48T94608F03	CP., DAN202U		
D612	48T94608F03	CP., DAN202U		
D613	48T15702W01	CP., SB05−05CP		
D614	48T94608F03	CP., DAN202U		
D615	48T94608F01	CP., DA204U		
D616	48T94608F03	CP., DAN202U		
D617	48T94608F03	CP., DAN202U		
D618	48T94608F03	CP., DAN202U		
D619	48T94608F03	CP., DAN202U		
D620	48T94608F03	CP., DAN202U		
D622	48C40235G02	10E2		
D624	48T15512W01	CP., DSM10		
D625	48T15512W01	CP., DSM10		
D626	48T94608F01	CP., DA204U		
ZD101	48T62934F05	Zener, CP., RD3.0MB2		
ZD102	48T62934F37	Zener, CP., RD9.1MB2		
ZD103	48T62934F37	Zener, CP., RD9.1MB2		
ZD104	48T62934F37	Zener, CP., RD9.1MB2		
ZD201	48T62934F01	Zener, CP., RD2.4MB1		
ZD601	48T62934F30	Zener, CP., RD7.5MB1		
ZD602	48T62934F19	Zener, CP., RD5.1MB2		
ZD603	48T62934F29	Zener, CP., RD6.8MB3		
ZD604	48T62934F33	Zener, CP., RD8.2MB1		
ZD605	48T62934F22	Zener, CP., RD5.6MB2		
ZD606	48T62934F40	Zener, CP., RD10MB2		
ZD607	48T62934F22	Zener, CP., RD5.6MB2		
ZD608	48T62934F49	Zener, CP., RD13MB2		
ZD609	48T62934F64	Zener, CP., RD22MB2		

Symbol No.	Part No.	Description		
Thermistor/Coils/Crystals/Filter				
TH201	48T93439F06	Thermistor, 100k ohm		
L601	25C40894G01	Coil, Choke, 1.2mH		
L602	24T71179F05	Coil, Inductor, 220 μ H		
L603	24T16271W13	Coil, 220 μ H		
X101	48T82502F02	Crystal 4.5MHz		
X201	48T84727F03	Crystal 16.9344MHz		
X601	91T15285W01	CER., LOCK 4.19MHz		
X102	91T69142F01	CER., LOCK, 456kHz		
Capacitors				
C101	08S65128F69	CP., 0.01 μ F		
C102	08S65128F69	CP., 0.01 μ F		
C103	23T16086W01	ELY., 220 μ F/10V		
C104	23T82372F19	ELY., (BP) 2.2 μ F/50V		
C105	08S65128F69	CP., 0.01 μ F		
C106	08S65128F69	CP., 0.01 μ F		
C107	08S65128F57	CP., 1000pF		
C108	08S65128F69	CP., 0.01 μ F		
C109	08S65128F57	CP., 1000pF		
C110	08T15399W02	CP., 0.033 μ F		
C111	08T90316F24	TF, 0.039 μ F		
C112	08S65128F57	CP., 1000pF		
C113	08S65128F69	CP., 0.01 μ F		
C114	23S61523F27	ELY., 0.33 μ F/50V		
C115	08S65128F57	CP., 1000pF		
C116	08S65128F69	CP., 0.01 μ F		
C117	08S65128F23	CP., 33pF		
C118	23S61523F08	ELY., 100 μ F/6.3V		
C119	08S65128F69	CP., 0.01 μ F		
C120	08S65128F69	CP., 0.01 μ F		
C121	08S65128F69	CP., 0.01 μ F		
C122	23S61523F29	ELY., 1 μ F/50V		
C123	23S61523F29	ELY., 1 μ F/50V		
C124	23S61523F09	ELY., 22 μ F/10V		
C125	08S65128F69	CP., 0.01 μ F		
C126	08S82122F21	CP., 22pF		
C127	08S82122F21	CP., 22pF		
C128	23S61523F11	ELY., 47 μ F/10V		
C129	08S65128F35	CP., 100pF		
C130	23S61523F12	ELY., 10 μ F/16V		
C131	23S61523F34	ELY., 100 μ F/10V		
C132	08S72783F35	CP., 1000pF		
C133	08S72783F35	CP., 1000pF		
C134	08T90316F09	TF, 2200pF		
C135	23S61523F09	ELY., 22 μ F/10V		
C136	08T90316F27	TF, 0.068 μ F		
C137	23S61523F29	ELY., 1 μ F/50V		
C138	08S65128F74	CP., 0.047 μ F		
C139	23S61523F25	ELY., 0.1 μ F/50V		
C140	23S61523F35	ELY., 0.68 μ F/50V		
C141	23S61523F12	ELY., 10 μ F/16V		
C142	23S61523F34	ELY., 100 μ F/10V		
C143	23S61523F17	ELY., 4.7 μ F/25V		
C144	08S65128F43	CP., 220pF		
C145	23S61523F17	ELY., 4.7 μ F/25V		
C146	23S61523F12	ELY., 10 μ F/16V		
C147	23S61523F12	ELY., 10 μ F/16V		
C148	08T90316F27	TF, 0.068 μ F		
C149	08T90316F27	TF, 0.068 μ F		
C150	23S61523F12	ELY., 10 μ F/16V		
C151	23S61523F12	ELY., 10 μ F/16V		
C152	23S61523F10	ELY., 33 μ F/10V		
C153	08S65128F69	CP., 0.01 μ F		
C154	08S65128F72	CP., 0.022 μ F		
C155	08S65128F12	CP., 10pF		
C201	23T74437F29	TAN., 3.3 μ F/16V		
C202	23S61524F08	ELY., 100 μ F/6.3V		
C203	08S65128F72	CP., 0.022 μ F		
C204	23S61524F13	ELY., 10 μ F/16V		
C205	23T74437F32	TAN., 10 μ F/16V		
C206	23T74437F32	TAN., 10 μ F/16V		
C207	08S65128F23	CP., 33pF		
C208	08S65128F23	CP., 33pF		
C209	08S65128F04	CP., 2pF		
C210	08S65128F69	CP., 0.01 μ F		
C211	23T15412W13	ELY., 10 μ F/16V		
C212	08S65128F31	CP., 68pF		
C213	08S65128F31	CP., 68pF		
C214	08S65128F51	CP., 470pF		
C215	23S61524F05	ELY., 22 μ F/6.3V		
C216	08T15399W03	CP., 0.047 μ F		
C217	08T15399W02	CP., 0.033 μ F		
C218	08S65128F27	CP., 47pF		
C219	08S65128F27	CP., 47pF		
C220	08S65128F27	CP., 47pF		
C221	08S65128F69	CP., 0.01 μ F		
C222	08S65128F60	CP., 1800pF		
C223	08S65128F69	CP., 0.01 μ F		
C224	23S61523F12	ELY., 10 μ F/16V		
C225	08S65128F76	CP., 0.1 μ F		
C226	23T74181F38	TAN., 10 μ F/10V		
C227	08S65128F69	CP., 0.01 μ F		
C228	08S65128F21	CP., 27pF		
C229	08S82122F13	CP., 10pF		
C230	08S82122F13	CP., 10pF		

Symbol No.	Part No.	Description		
C232	08S65128F69	CP., 0.01 μF		
C234	08S65128F19	CP., 22pF		
C235	08T15399W02	CP., 0.033 μF		
C236	08S65128F65	CP., 4700pF		
C238	08S65128F47	CP., 330pF		
C239	23S61524F31	ELY., 0.47 μF/50V		
C240	08S65128F67	CP., 6800pF		
C241	08S65128F62	CP., 2700pF		
C242	08S65128F69	CP., 0.01 μF		
C243	08T15807W05	CP., 0.1 μF		
C244	23S61523F17	ELY., 4.7 μF/25V		
C245	23T74181F38	TAN., 10 μF/10V		
C246	23S61524F13	ELY., 10 μF/16V		
C247	08S65128F74	CP., 0.047 μF		
C248	23S61523F12	ELY., 10 μF/16V		
C249	08S65128F74	CP., 0.047 μF		
C250	08S65128F76	CP., 0.1 μF		
C251	08S65128F74	CP., 0.047 μF		
C252	23S61524F13	ELY., 10 μF/16V		
C254	23S61524F13	ELY., 10 μF/16V		
C255	23T74181F38	TAN., 10 μF/10V		
C256	23S61524F13	ELY., 10 μF/16V		
C257	23S61523F29	ELY., 1 μF/50V		
C258	08S65128F29	CP., 56pF		
C259	08S53332F35	CP., 1000pF		
C260	08S65128F12	CP., 10pF		
C401	23S61524F13	ELY., 10 μF/16V		
C402	23S61524F13	ELY., 10 μF/16V		
C403	23S61523F12	ELY., 10 μF/16V		
C404	23S61523F12	ELY., 10 μF/16V		
C405	23S61523F12	ELY., 10 μF/16V		
C406	23S61524F13	ELY., 10 μF/16V		
C409	08S82122F21	CP., 22pF		
C410	08S82122F21	CP., 22pF		
C415	08S82122F37	CP., 100pF		
C416	08S82122F37	CP., 100pF		
C417	08S82122F21	CP., 22pF		
C418	08S82122F21	CP., 22pF		
C419	08T90316F17	TF, 0.01 μF		
C420	08T90316F17	TF, 0.01 μF		
C421	08S72783F38	CP., 1800pF		
C422	08S72783F38	CP., 1800pF		
C423	08S82122F34	CP., 75pF		
C424	08S82122F34	CP., 75pF		
C425	08S72783F37	CP., 1500pF		
C426	08S72783F37	CP., 1500pF		
C427	08T90316F21	TF, 0.022 μF		
C428	08T90316F21	TF, 0.022 μF		
C429	23S61523F12	ELY., 10 μF/16V		
C430	23S61523F12	ELY., 10 μF/16V		

Symbol No.	Part No.	Description		
C431	23S61523F12	ELY., 10 μF/16V		
C432	23S61523F12	ELY., 10 μF/16V		
C433	23S61523F12	ELY., 10 μF/16V		
C434	08S65128F43	CP., 220pF		
C435	08S65128F43	CP., 220pF		
C601	23S61524F13	ELY., 10 μF/16V		
C602	23S82482F02	ELY., 100 μF/16V		
C604	23S61524F29	ELY., 0.22 μF/50V		
C605	23S61523F12	ELY., 10 μF/16V		
C606	23S61523F26	ELY., 0.22 μF/50V		
C607	08S53332F57	CP., 0.1 μF		
C609	23T16086W02	ELY., 330 μF/6.3V		
C610	23S61524F13	ELY., 10 μF/16V		
C612	23S61524F13	ELY., 10 μF/16V		
C613	23S40657F63	ELY., 1000 μF/16V		
C614	08S65128F76	CP., 0.1 μF		
C615	23S82482F02	ELY., 100 μF/16V		
C617	23S61523F12	ELY., 10 μF/16V		
C618	23S61524F13	ELY., 10 μF/16V		
C619	23S61524F33	ELY., 2.2 μF/50V		
C620	23T15412W13	ELY., 10 μF/16V		
C621	08S53332F57	CP., 0.1 μF		
C622	23S61523F12	ELY., 10 μF/16V		
C625	08S65128F69	CP., 0.01 μF		
C628	08S65128F37	CP., 120pF		
C629	23T16314W01	ELY., 470 μF/10V		
C630	23T15412W13	ELY., 10 μF/16V		
C631	08S65128F76	CP., 0.1 μF		
C632	08S65128F76	CP., 0.1 μF		
C633	23T15412W13	ELY., 10 μF/16V		
C634	23S61524F16	ELY., 47 μF/16V		
C635	23S61523F29	ELY., 1 μF/50V		
C636	23S61524F13	ELY., 10 μF/16V		
C637	23S61523F29	ELY., 1 μF/50V		
C638	08S65128F69	CP., 0.01 μF		
C639	23S61523F12	ELY., 10 μF/16V		
C640	08S65128F69	CP., 0.01 μF		
C641	08T15399W02	CP., 0.033 μF		
Resistors (All resistors are chip 1/16W±5% unless otherwise noted.)				
R101	06S64995F65	3.3k ohm		
R102	06S64995F53	1k ohm		
R103	06S64995F65	3.3k ohm		
R104	06S64995F53	1k ohm		
R105	06S64995F05	10 ohm		
R106	06S64995F53	1k ohm		
R107	06S64995F15	27 ohm		
R108	06S64995F29	100 ohm		
R109	06S64995F53	1k ohm		
R110	06S64995F61	2.2k ohm		

Symbol No.	Part No.	Description		
R111	06S64995F61	2.2k ohm		
R112	06S64995F61	2.2k ohm		
R113	06S64995F81	15k ohm		
R114	06S64995F81	15k ohm		
R115	06S64995F05	10 ohm		
R116	06S64995F57	1.5k ohm		
R117	06S64995F71	5.6k ohm		
R118	06T70072F41	330 ohm 1/4W		
R119	06S64995F77	10k ohm		
R120	06S64995F77	10k ohm		
R121	06S64995F77	10k ohm		
R123	06S64996F02	100k ohm		
R125	06S64995F53	1k ohm		
R126	06S64995F89	33k ohm		
R127	06S64995F89	33k ohm		
R128	06S64996F02	100k ohm		
R129	06S64996F02	100k ohm		
R130	06S64995F53	1k ohm		
R131	06S64995F77	10k ohm		
R132	06S64995F93	47k ohm		
R133	06S64995F93	47k ohm		
R134	06S64995F65	3.3k ohm		
R135	06S64995F65	3.3k ohm		
R136	06S64995F65	3.3k ohm		
R137	06T70072F53	1k ohm 1/4W		
R138	06T70072F53	1k ohm 1/4W		
R140	06S64995F77	10k ohm		
R141	06S64995F77	10k ohm		
R142	06T70072F53	1k ohm 1/4W		
R148	06S64995F05	10 ohm		
R149	06S64995F59	1.8k ohm		
R150	06S64995F34	160 ohm		
R151	06S64995F93	47k ohm		
R152	06S64995F77	10k ohm		
R153	06S64995F65	3.3k ohm		
R154	06S64995F69	4.7k ohm		
R155	06S64996F10	220k ohm		
R156	06S64995F71	5.6k ohm		
R157	06S64995F93	47k ohm		
R158	06S64995F53	1k ohm		
R159	06S64995F53	1k ohm		
R160	06S64995F53	1k ohm		
R161	06S64995F53	1k ohm		
R162	06S64995F43	390 ohm		
R163	06S64996F26	1M ohm		
R164	06S64996F26	1M ohm		
R165	06S64995F53	1k ohm		
R166	06S64996F22	680k ohm		
R167	06S64995F61	2.2k ohm		
R168	06S64995F93	47k ohm		

Symbol No.	Part No.	Description		
R169	06S64996F02	100k ohm		
R170	06S64995F95	56k ohm		
R201	06T70072F05	10 ohm 1/4W		
R202	06S64995F53	1k ohm		
R203	06S64996F26	1M ohm		
R204	06S64995F83	18k ohm		
R205	06S64995F77	10k ohm		
R206	06S64995F55	1.2k ohm		
R207	06S64995F79	12k ohm		
R208	06S64995F93	47k ohm		
R209	06S64995F41	330 ohm		
R210	06S64996F16	390k ohm		
R211	06S64996F14	330k ohm		
R212	06S64995F99	82k ohm		
R213	06S64995F81	15k ohm		
R214	06S64995F53	1k ohm		
R215	06S64995F99	82k ohm		
R216	06S64995F99	82k ohm		
R217	06S64995F73	6.8k ohm		
R218	06S64996F11	240k ohm		
R219	06S64995F87	27k ohm		
R220	06S64995F74	7.5k ohm		
R221	06S64995F83	18k ohm		
R222	06S64995F79	12k ohm		
R223	06S64995F53	1k ohm		
R224	06S64995F85	22k ohm		
R225	06S64995F79	12k ohm		
R226	06S64995F73	6.8k ohm		
R227	06S64995F75	8.2k ohm		
R228	06S64995F75	8.2k ohm		
R229	06S64995F77	10k ohm		
R230	06S64995F85	22k ohm		
R231	06S64996F26	1M ohm		
R232	06S64995F91	39k ohm		
R233	06S64995F74	7.5k ohm		
R234	06S64995F75	8.2k ohm		
R235	06S64995F67	3.9k ohm		
R236	06S64995F61	2.2k ohm		
R237	06S64995F77	10k ohm		
R239	06S64995F73	6.8k ohm		
R240	06S64995F57	1.5k ohm		
R241	06S64996F02	100k ohm		
R242	06S64996F10	220k ohm		
R243	06S64995F85	22k ohm		
R244	06S64995F77	10k ohm		
R245	06S64996F26	1M ohm		
R246	06S64995F97	68k ohm		
R248	06S64995F97	68k ohm		
R249	06S64995F93	47k ohm		
R251	06S64995F75	8.2k ohm		

Symbol No.	Part No.	Description		
R252	06S64995F89	33k ohm		
R254	06S64995F61	2.2k ohm		
R255	06S64995F83	18k ohm		
R256	06S64996F02	100k ohm		
R257	06S64995F73	6.8k ohm		
R258	06S64995F86	24k ohm		
R259	06S64996F14	330k ohm		
R260	06S64996F02	100k ohm		
R261	06S64996F10	220k ohm		
R262	06S64995F85	22k ohm		
R263	06S64995F91	39k ohm		
R264	06S64995F93	47k ohm		
R265	06S64995F77	10k ohm		
R266	06S64995F85	22k ohm		
R267	06S64995F85	22k ohm		
R268	06S64995F85	22k ohm		
R269	06S64995F85	22k ohm		
R270	06S64995F85	22k ohm		
R271	06S64995F77	10k ohm		
R272	06S64995F77	10k ohm		
R273	06S64995F05	10 ohm		
R274	06S64995F77	10k ohm		
R275	06T70072F53	1k ohm 1／4W		
R276	06S64995F77	10k ohm		
R277	06S64996F18	470k ohm		
R278	06S64995F05	10 ohm		
R279	06S64995F85	22k ohm		
R280	06S64995F85	22k ohm		
R282	06S64995F85	22k ohm		
R283	06S64995F85	22k ohm		
R284	06S64995F13	22 ohm		
R285	06S64995F77	10k ohm		
R286	06S64995F53	1k ohm		
R287	06S64995F77	10k ohm		
R288	06S64995F69	4.7k ohm		
R289	06S64995F69	4.7k ohm		
R290	06S64995F69	4.7k ohm		
R291	06S64996F32	3.3M ohm		
R292	06S64996F26	1M ohm		
R293	06S64995F77	10k ohm		
R294	06S64996F20	560k ohm		
R295	06S64995F53	1k ohm		
R296	06S64996F18	470k ohm		
R297	06S64996F02	100k ohm		
R298	06S64995F85	22k ohm		
R320	06S64995F79	12k ohm		
R321	06S64995F77	10k ohm		
R401	06S64995F53	1k ohm		
R402	06S64995F53	1k ohm		
R403	06S64995F53	1k ohm		

Symbol No.	Part No.	Description		
R404	06S64995F53	1k ohm		
R405	06S64995F37	220 ohm		
R406	06S64995F37	220 ohm		
R407	06S64995F77	10k ohm		
R408	06S64995F77	10k ohm		
R409	06S64995F77	10k ohm		
R410	06S64995F77	10k ohm		
R411	06S64995F77	10k ohm		
R412	06S64995F77	10k ohm		
R413	06S64995F77	10k ohm		
R414	06S64995F77	10k ohm		
R415	06S64995F87	27k ohm		
R416	06S64995F87	27k ohm		
R417	06S64995F77	10k ohm		
R418	06S64995F77	10k ohm		
R419	06S64995F77	10k ohm		
R420	06S64995F77	10k ohm		
R421	06S64995F77	10k ohm		
R422	06S64995F77	10k ohm		
R423	06T70072F61	2.2k ohm 1／4W		
R424	06S64995F85	22k ohm		
R425	06T70072F61	2.2k ohm 1／4W		
R426	06S64995F61	2.2k ohm		
R427	06S64995F83	18k ohm		
R428	06S64995F83	18k ohm		
R429	06S64995F77	10k ohm		
R430	06S64995F77	10k ohm		
R431	06S64995F77	10k ohm		
R432	06S64995F77	10k ohm		
R433	06S64996F26	1M ohm		
R434	06S64996F26	1M ohm		
R435	06S64995F53	1k ohm		
R436	06S64995F53	1k ohm		
R437	06S64995F53	1k ohm		
R438	06S64995F53	1k ohm		
R439	06S64995F77	10k ohm		
R440	06S64995F77	10k ohm		
R441	06S64996F04	120k ohm		
R442	06S64996F04	120k ohm		
R443	06S64995F90	36k ohm		
R444	06S64995F90	36k ohm		
R445	06S64996F02	100k ohm		
R446	06S64996F02	100k ohm		
R447	06S64995F85	22k ohm		
R448	06S64995F85	22k ohm		
R449	06S64995F85	22k ohm		
R450	06S64995F85	22k ohm		
R451	06S64996F02	100k ohm		
R452	06S64996F02	100k ohm		
R453	06S64995F57	1.5k ohm		

Symbol No.	Part No.	Description		
R454	06S64995F57	1.5k ohm		
R455	06S64996F18	470k ohm		
R456	06S64996F18	470k ohm		
R457	06S64995F66	3.6k ohm		
R458	06S64995F66	3.6k ohm		
R459	06S64995F70	5.1k ohm		
R460	06S64995F70	5.1k ohm		
R461	06S64995F93	47k ohm		
R462	06S64995F93	47k ohm		
R463	06S64995F70	5.1k ohm		
R464	06S64995F70	5.1k ohm		
R465	06S64996F34	4.7M ohm		
R466	06S64996F34	4.7M ohm		
R467	06S64995F73	6.8k ohm		
R468	06S64995F85	22k ohm		
R470	06S64995F85	22k ohm		
R471	06S64995F85	22k ohm		
R472	06S64995F19	39 ohm		
R473	06S64996F02	100k ohm		
R601	06S64995F77	10k ohm		
R602	06T70072F61	2.2k ohm 1/4W		
R604	06T70072F53	1k ohm 1/4W		
R605	06T70072F53	1k ohm 1/4W		
R606	06S64995F05	10 ohm		
R607	06T70072F65	3.3k ohm 1/4W		
R608	06S64995F69	4.7k ohm		
R609	06S64995F85	22k ohm		
R610	06S64995F69	4.7k ohm		
R611	06S64995F85	22k ohm		
R612	06T70072F78	2.2 ohm 1/4W		
R613	06S64995F85	22k ohm		
R614	06S64995F61	2.2k ohm		
R615	06S64995F77	10k ohm		
R616	06S64995F77	10k ohm		
R617	06S64995F77	10k ohm		
R618	06S64995F69	4.7k ohm		
R619	06S64995F53	1k ohm		
R620	06S64995F77	10k ohm		
R621	06T70072F53	1k ohm 1/4W		
R622	06S64995F99	82k ohm		
R624	06S64995F45	470 ohm		
R625	06S64995F77	10k ohm		
R626	06T70072F53	1k ohm 1/4W		
R627	06T70072F37	220 ohm 1/4W		
R628	06S64995F81	15k ohm		
R629	06S64995F70	5.1k ohm		
R630	06S64995F87	27k ohm		
R631	06S64995F78	11k ohm		
R632	06S64995F77	10k ohm		
R633	06T70072F45	470 ohm 1/4W		

Symbol No.	Part No.	Description		
R634	06S64995F77	10k ohm		
R635	06S64995F61	2.2k ohm		
R636	06S64996F10	220k ohm		
R637	06S64995F77	10k ohm		
R638	06S64995F77	10k ohm		
R639	06S64996F02	100k ohm		
R640	06S64996F02	100k ohm		
R641	06S64996F02	100k ohm		
R642	06S64996F02	100k ohm		
R643	06S64996F02	100k ohm		
R646	06S64996F02	100k ohm		
R647	06S64995F93	47k ohm		
R648	06S64995F77	10k ohm		
R649	06S64995F77	10k ohm		
R650	06S64995F77	10k ohm		
R651	06S64995F63	2.7k ohm		
R652	06S64996F02	100k ohm		
R653	06S64996F02	100k ohm		
R654	06S64995F81	15k ohm		
R655	06T70072F29	100 ohm 1/4W		
R656	06T70072F47	560 ohm 1/4W		
R657	06S64996F02	100k ohm		
R658	06S64995F77	10k ohm		
R659	06T70072F53	1k ohm 1/4W		
R660	06S64996F02	100k ohm		
R661	06S64995F77	10k ohm		
R662	06S64995F77	10k ohm		
R663	06S64995F77	10k ohm		
R665	06S64995F85	22k ohm		
R666	06T70072F53	1k ohm 1/4W		
R668	06T70072F47	560 ohm 1/4W		
R669	06S64995F69	4.7k ohm		
R670	06S64995F53	1k ohm		
R671	06S64995F61	2.2k ohm		
R672	06S64995F85	22k ohm		
R673	06S64995F53	1k ohm		
R674	06S64995F45	470 ohm		
R680	06S64995F65	3.3k ohm		
R681	06S64996F03	110k ohm		
R682	06S64996F04	120k ohm		
R683	06S64996F02	100k ohm		
R684	06S64995F91	39k ohm		
R685	06S64995F93	47k ohm		
R686	06S64995F93	47k ohm		
R688	06S53330F77	10k ohm 1/8W		
R689	06T70072F45	470 ohm 1/4W		
VR101	18T10024W03	Variable, 220 ohm		
VR201	18T15805W19	Variable, 100k ohm		
VR406	18T25095W01	Variable, 220 ohm		

Symbol No.	Part No.	Description		
VR401-1 VR401-2 VR401-3 VR401-4 VR401-5 VR401-6 S801 S905	18T15283W01	Volume, Rotary (VOLUME／BAL／FAD) (POWER) (SDK)		

Load／Photo P. C. Board

IC／Transistors

Symbol No.	Part No.	Description		
IC301	51T15267W01	IC, LB1641		
Q305	48T62967F03	CP., DTC124K		
Q306	48T62966F03	CP., DTA124		
Q307	48T83415F03	2SD1858		
Q308	48T83415F03	2SD1858		
PT301	48T92913F01	PHOTO, PT360		
PT302	48T92913F01	PHOTO, PT360		
PT303	48T92913F01	PHOTO, PT360		

LEDs／Diodes

Symbol No.	Part No.	Description		
LD301	48T16057W02	LED, AN 501−B1 (RED)		
LD302	48T16057W02	LED, AN 501−B1 (RED)		
LD303	48T16057W02	LED, AN 501−B1 (RED)		
ZD301	48T15440W12	Zener, UTZJ6.2C		
ZD302	48T15440W08	Zener, UTZJ5.6B		
ZD303	48T15440W28	Zener, UTZJ11A		

Capacitors

Symbol No.	Part No.	Description		
C301	08S65128F69	CP., 0.01 μF		
C302	08S65128F69	CP., 0.01 μF		
C303	23T74437F32	TAN., 10 μF／16V		
C304	23S61523F12	ELY., 10 μF／16V		

Resistors (All resistors are chip 1／8W±5% unless otherwise noted.)

Symbol No.	Part No.	Description		
R301	06S53330F47	560 ohm		
R302	06S53330F47	560 ohm		
R303	06S53330F47	560 ohm		
R304	06S53331F02	100k ohm		
R305	06S53331F02	100k ohm		
R306	06S53331F02	100k ohm		
R307	06T70072F45	470 ohm 1／4W		
R309	06C43205J38	Metal Film, 10 ohm 1／2W		
R310	06S53330F47	560 ohm		
R311	06S53331F02	100k ohm		
R312	06T70072F53	1k ohm 1／4W		

Main-Front P. C. Board

IC's

Symbol No.	Part No.	Description		
IC405	51T92001F01	BA4560F		
or	51T93338F01	NJM4560E		
IC901	51T15269W02	MSC1149GS		
IC902	51T15269W02	MSC1149GS		

Transistors

Symbol No.	Part No.	Description		
Q901	48T63419F01	CP., 2SA1036K		
Q903	48T63461F01	CP., 2SC2411K		

Diodes／LED

Symbol No.	Part No.	Description		
D901	48T94608F01	CP., DA204U		
ZD901	48T62934F27	Zener, CP., RD6.8MB1		
LD902	48T42449F12	LED, BG5535K (GRN)		

Switches

Symbol No.	Part No.	Description		
S901	40T66861F03	Tact, SKHHAQ (RESET)		
S902	40T66861F03	Tact, SKHHAQ (MONO)		
S903	40T66861F03	Tact, SKHHAQ (DX)		
S904	40T66861F03	Tact, SKHHAQ (TU／BAND)		
S906	40T66861F03	Tact, SKHHAQ (UP)		
S907	40T66861F03	Tact, SKHHAQ (4)		
S908	40T66861F03	Tact, SKHHAQ (5)		
S909	40T66861F03	Tact, SKHHAQ (6)		
S910	40T10876W12	Tact, SKHLAJ (SEEK)		
S911	40T66861F03	Tact, SKHHAQ (DOWN)		

Symbol No.	Part No.	Description		
S912	40T66861F03	Tact, SKHHAQ (1/MIX)		
S913	40T66861F03	Tact, SKHHAQ (2/REP)		
S914	40T66861F03	Tact, SKHHAQ (3/SCAN)		
S915	40T66861F03	Tact, SKHHAQ (PLAY/PAUSE)		
S916	40T66861F03	Tact, SKHHAQ (EJECT)		
Lamps				
PL901	65T95274F02	Pilot, 6V−70mA		
PL902	65T95274F02	Pilot, 6V−70mA		
PL903	65T67467F03	Pilot, 6V−32mA		
PL904	65T95274F02	Pilot, 6V−70mA		
Capacitors				
C408	23S61523F12	ELY., 10 μF/16V		
C411	08T90316F22	TF, 0.027 μ F		
C412	08T90316F22	TF, 0.027 μ F		
C413	08T90316F15	TF, 6800pF		
C414	08T90316F15	TF, 6800pF		
Resistors (All resistors are chip 1/16W±5% unless otherwise noted.)				
R901	06S64995F77	10k ohm		
R902	06S64995F65	3.3k ohm		
R903	06T70072F05	10 ohm 1/4W		
R905	06S64995F70	5.1k ohm		
R906	06S64995F64	3k ohm		
R907	06S64995F60	2k ohm		
R908	06S64995F91	39k ohm		
R909	06S64995F70	5.1k ohm		
R910	06S64995F64	3k ohm		
R911	06S64995F60	2k ohm		
R912	06S64995F88	30k ohm		
R913	06S64995F77	10k ohm		
R914	06S64995F70	5.1k ohm		
R915	06S64995F64	3k ohm		
R916	06S64995F60	2k ohm		
R917	06S64995F45	470 ohm		
R918	06T70072F37	220 ohm 1/4W		
VR404	18T15284W01	Volume, Slide (Treble)		
VR405	18T15284W01	Volume, Slide (Bass)		

Symbol No.	Part No.	Description		
QRB P. C. Board				
Capacitors				
C650	08S65128F57	CP., 1000pF		
C651	08S65128F57	CP., 1000pF		
C652	08S65128F57	CP., 1000pF		
C653	08S65128F57	CP., 1000pF		
C654	08S65128F57	CP., 1000pF		
C655	08S65128F57	CP., 1000pF		
C656	08S65128F57	CP., 1000pF		
C657	08S65128F57	CP., 1000pF		
C658	08S65128F57	CP., 1000pF		
C659	08S65128F57	CP., 1000pF		
C660	08S65128F57	CP., 1000pF		
C661	08S65128F57	CP., 1000pF		
C662	08S65128F57	CP., 1000pF		
C663	08S65128F57	CP., 1000pF		
Miscellaneous				
BA601	60T91060F01	Battery Lithium (CR2032−HE2)		
E801	09T15921W03	QRB, Connector (22P)		
FL901	65T15282W03	FL Display, VFD (6−BT−86N)		
HD201	88T15309W01	Pick Up		
LD304	48T16057W02	LED, AN501		
M301	01V13100W97	Assy., Motor Load		
M302	59T91005F01	Motor, Spindle		
M303	59T52973F03	Motor, Sled		
PT304	48T92913F01	Transistor, Photo PT360		
S301	40T71025F03	Switch, Detector (CAM END)		
S302	40T71025F01	Switch, Detector (LIMIT)		
SD301	01A90816F01	Assy., DP Frame Solenoid		

Packing Assembly Parts List

Symbol No.	Part No.	Description		
101	01V11900W92	Assy., Installation Kit		
101-1	02B47353F01	Nut, Hex (M5)		
101-2	03S40012G66	Screw, Tapping (M5 × 20)		
101-3	03B44963F03	Bolt, Hex W/Washer (M5 × 10)		
101-4	03A40155F05	Bolt, Hex (M5 × 14)		
101-5	03A40155F01	Bolt, Hex (M5 × 8)		
101-6	03A84814F04	Screw, Bind (M2.6 × 18)		
101-7	43A58272F04	Spacer		
101-8	45A41684U01	Arm, Adapter		
102-1	68P10790W82	Owner's Manual		
102-2	68P13420W34	Owner's Manual		
103	56S12717W29	Carton, Packing (Individual)		
104	56D13048W01	Tray, Packing (L)		
105	56D13048W02	Tray, Packing (R)		
106	56B40990T36	Sack, Polyethylene		

Symbol No.	Part No.	Description		
107	07B64552F01	Bracket, Strap Receiver		
108	01V16200W69	Assy., Mother Case		
108-1	01T94603F07	Assy., QRB Connector (PLUG)		
108-2	15D94518F01	Case, Mother		
108-3	03S44205G33	Screw, Pan (M2.6 × 8)		
108-4	03S44205G07	Screw, Pan (M2.6 × 5)		
109	01T96095F01	Assy., Connector (4P)		
110	01T15832W01	Assy., RCA 600		

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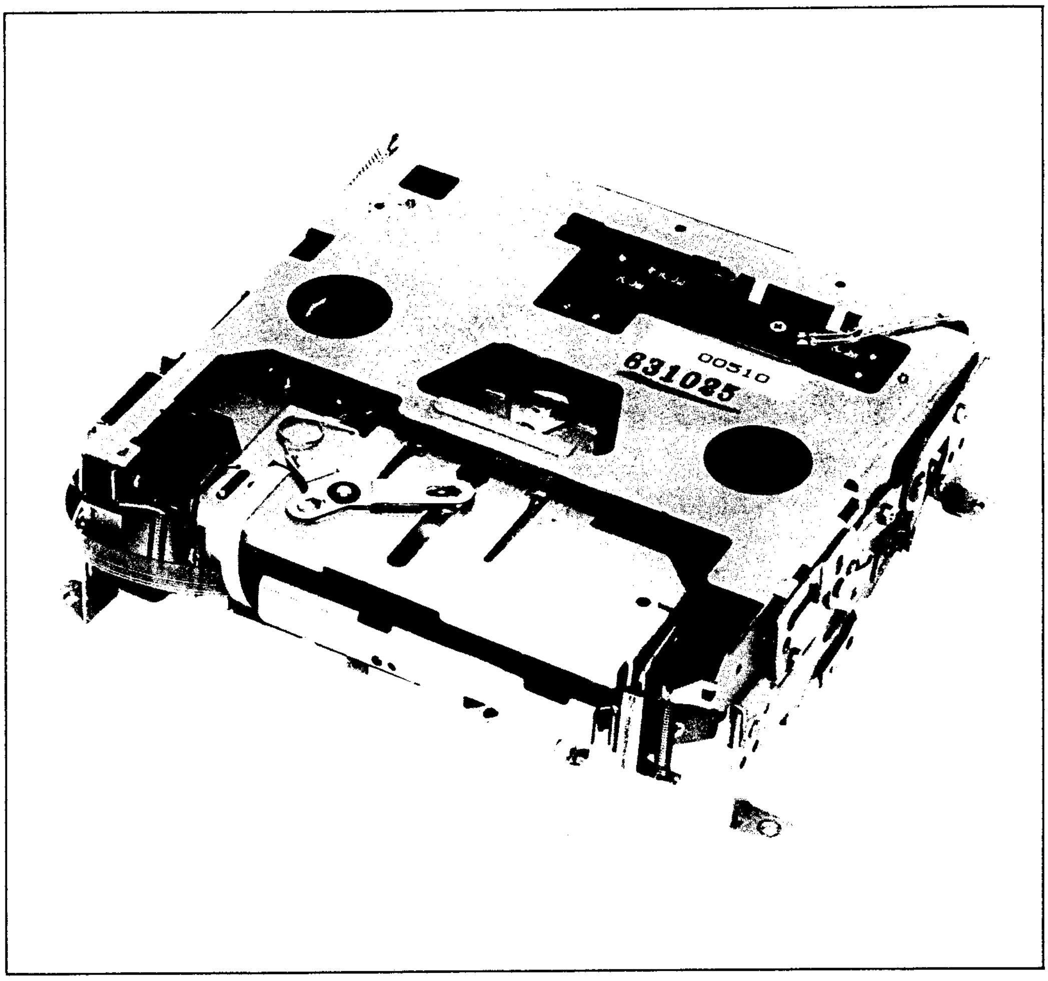
ALPINE SERVICE MANUAL

CD Player Mechanism

ADDENDUM & REVISED (III)



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DP-S SERIES

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Mechanism Function Description

Function	Step	Description	Illustration
LOADING (of a 12cm CD)	①	The beam to the photo sensor (A) will be broken when a disc is inserted into the loading position.	Figure 1
	②	The mechanism detects the disc insertion and actuates the Loading motor to rotate. The rotation of motor is transmitted to the drive roller through gears (E), (D), (B) and (A).	Figure 2 Figure 7
	③	The disc will be pinched between the drive roller and the upper guide and pulled into the mechanism.	Figure 7
	④	The disc reaches to the sensor gate mechanism. The beam to the photo sensor (D) is broken, and simultaneously the micro-processor discriminates 12 or 8cm CD size depending on the photo sensor (B). If the beam to the photo sensor (B) is broken, the micro-processor detects that the disc is a 12cm CD and it continues feeding the disc.	Figure 3

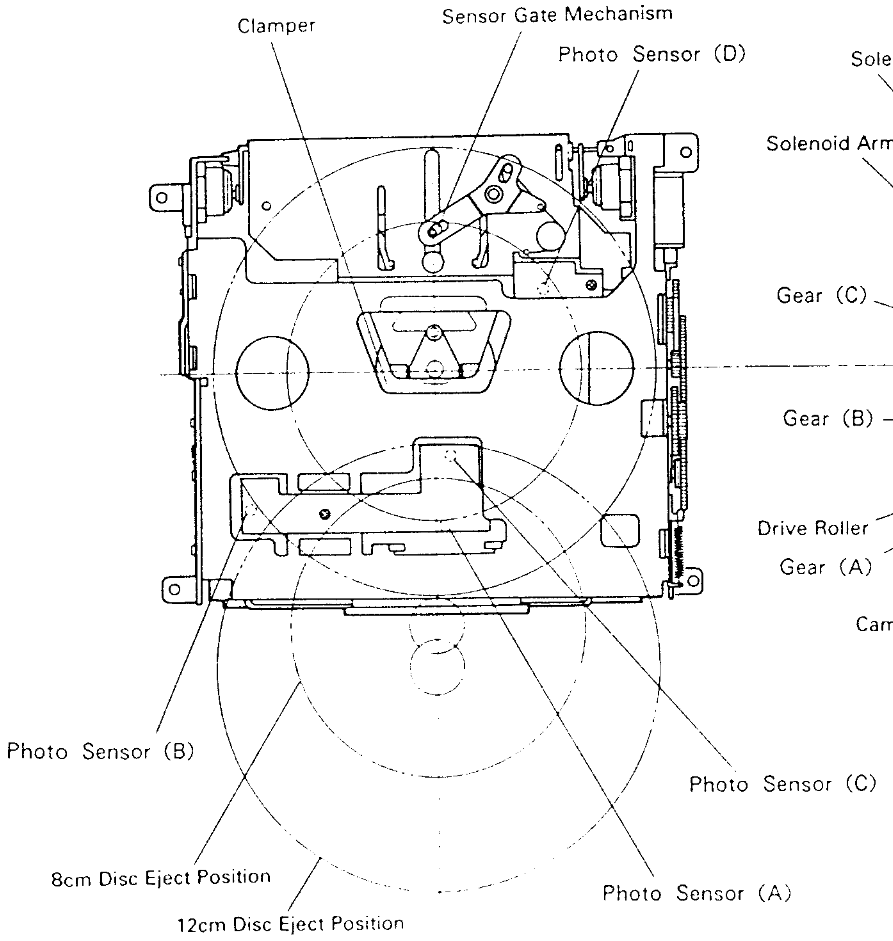

Clamper
Sensor Gate Mechanism
Photo Sensor (D)
Photo Sensor (B)
Photo Sensor (C)
8cm Disc Eject Position
12cm Disc Eject Position
Photo Sensor (A)

Figure 1

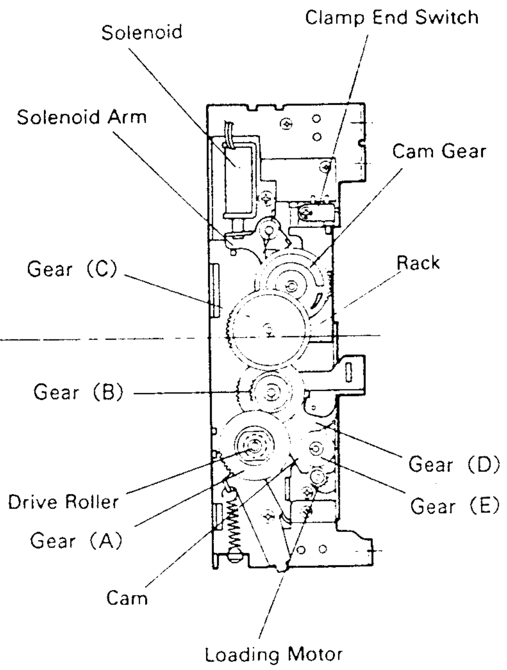

Solenoid
Clamp End Switch
Solenoid Arm
Cam Gear
Gear (C)
Rack
Gear (B)
Gear (D)
Drive Roller
Gear (E)
Gear (A)
Cam
Loading Motor

Figure 2

Function	Step	Description	Illustration
LOADING (of a 12cm CD)	⑤	The disc touches the left and right stopper pins, and push them by the feed mechanism. By pushing the stopper pins, the left and right lock levers rotate and the lock pins remove from the lock position of the guide holes.	Figure 3
	⑥	The disc touches the disc stopper and moves the unlocked sensor gate to the outer direction by the feed mechanism.	Figure 4
	⑦	If the disc reaches to the end position, the beam reaches to the photo sensor (B).	Figure 4
	⑧	The mechanism detects that the disc is pulled into the chucking position and starts chucking action.	Figure 4

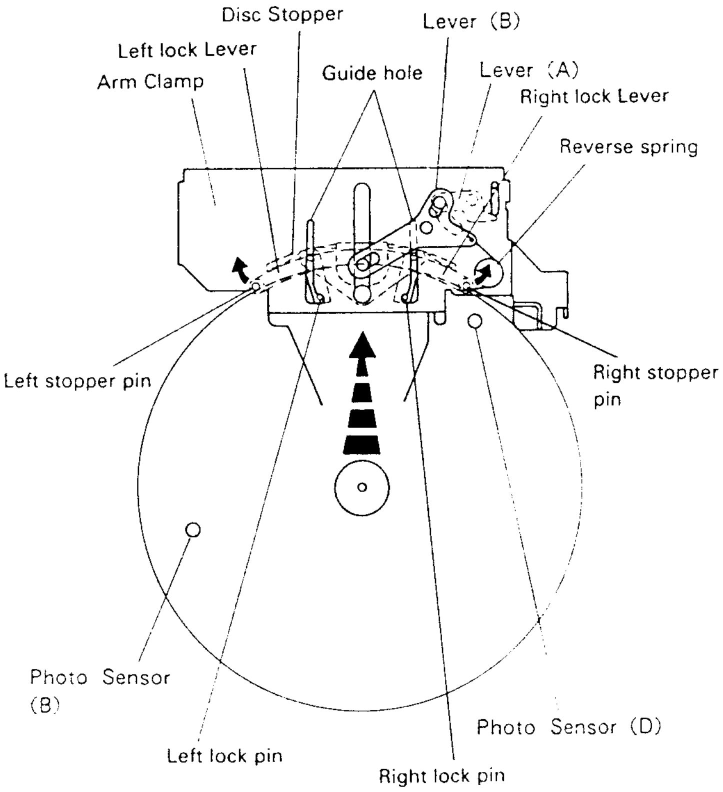

Disc Stopper
Lever (B)
Left lock Lever
Guide hole
Lever (A)
Arm Clamp
Right lock Lever
Reverse spring
Left stopper pin
Right stopper pin
Photo Sensor (B)
Photo Sensor (D)
Left lock pin
Right lock pin

Figure 3

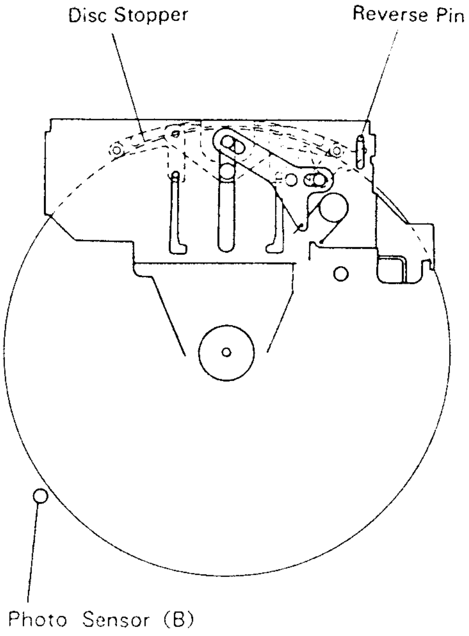
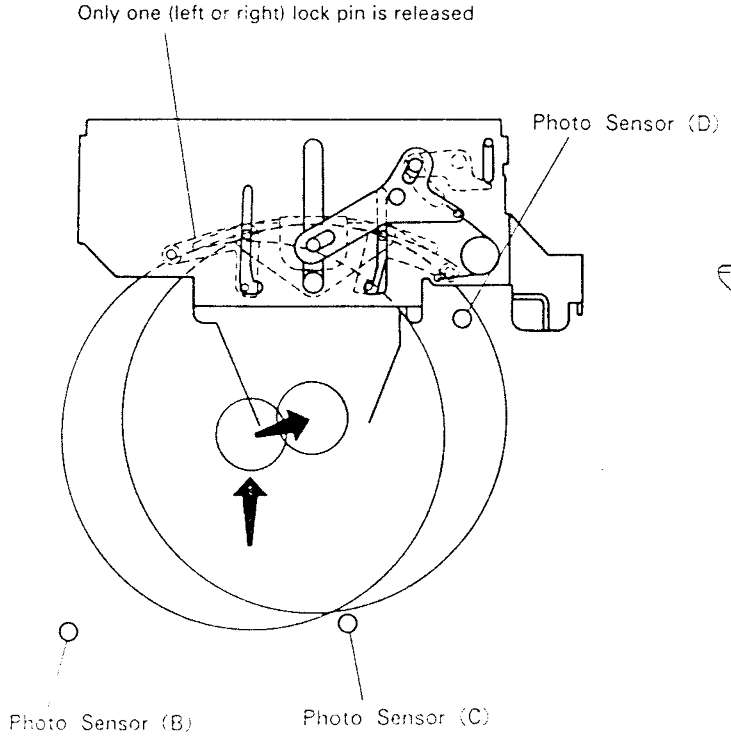

Disc Stopper
Reverse Pin
Photo Sensor (B)

Figure 4

Function	Step	Description	Illustration
LOADING (of a 8cm CD)	① ② ③	The same process as 12cm CD loading operation steps ①~③.	Figure 1 Figure 2 Figure 7
	④	The disc reaches to the sensor gate mechanism. The sensor gate mechanism moves depending on the disc insertion position at the disc slot as follows. A) When the disc is inserted at the center of the slot. The disc touches to the disc stopper. The disc cannot push both the left and right stopper pins, so that the locking pins cannot be released. The disc movement stops there. B) When the disc is inserted at the deviated position to the left or right from the center of the slot. First, the disc pushes the left or right stopper pin. The disc cannot push the another stopper pin, so that the locking pins cannot be released. The disc moves by the shape of the disc stopper to the center position and stops.	Figure 5
	⑤	If the beam reaches to the photo sensor (B) and (C) when the beam to the photo sensor (D) is broken by the disc, the mechanism discriminates that the 8cm CD is in the chucking position, and starts chucking action.	Figure 5



When a disc is inserted at the left from the center of the slot.

Figure 5

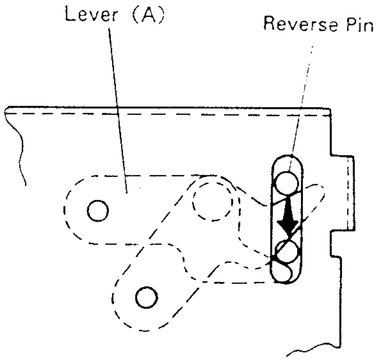


Figure 6

Function	Step	Description	Illustration
CHUCKING	①	The mechanism detects that the disc is pulled into the Chucking position and pulls the solenoid.	Figure 8
	②	The solenoid arm connected with the solenoid, starts to rotate and transmits the rotation to the cam gear.	Figure 8
	③	The cam gear starts to rotate and engages with the gear (C) then the driving power of the Loading motor will be transmitted to the cam gear.	Figure 8
	④	The rotating cam gear engages with rack, and moves the rack toward the right.	Figure 8
	⑤	With the movement of the rack, the following functions will be performed simultaneously. A. The clamper moves downward and chucks the disc. B. The drive roller moves downward and releases the disc pinched previously and moves the disc downward. C. Releases the locking on the pickup block and places the unit in the floating status.	Figure 8 Figure 9 Figure 10
	⑥	The rack slides to the right end and releases the engagements between the gear (C) and the cam gear as well as the cam gear and rack, and turns the clamp end switch on.	Figure 8
	⑦	The mechanism detects that the clamp operation has finished, and the Loading motor stops rotating.	Figure 8

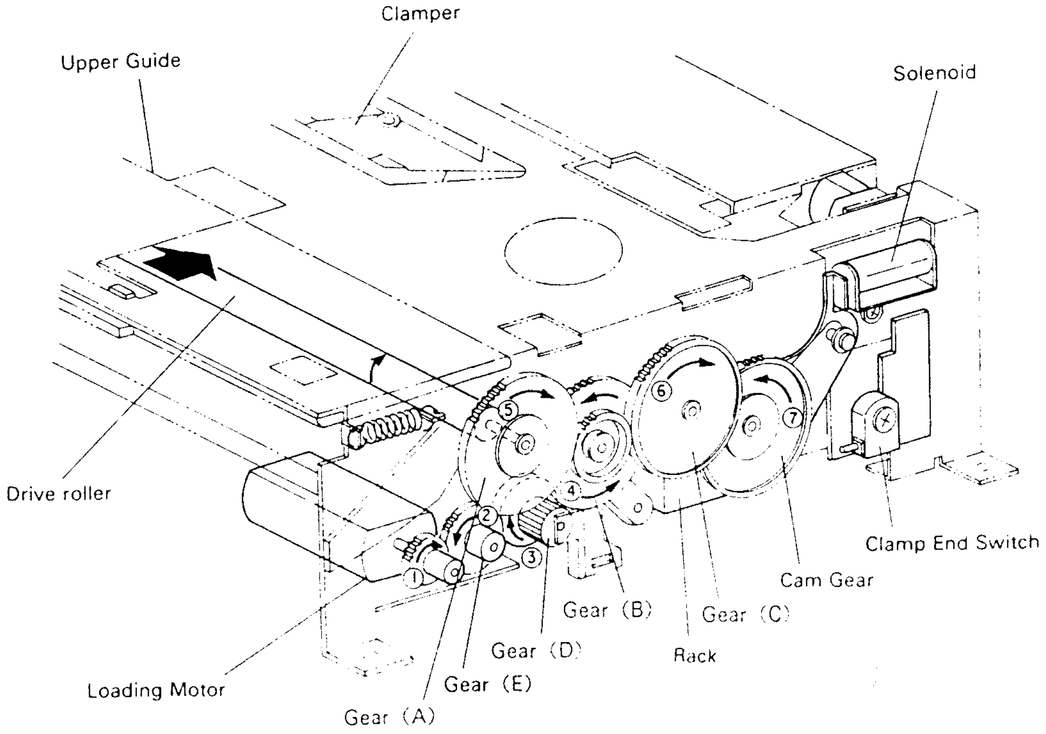


Figure 7

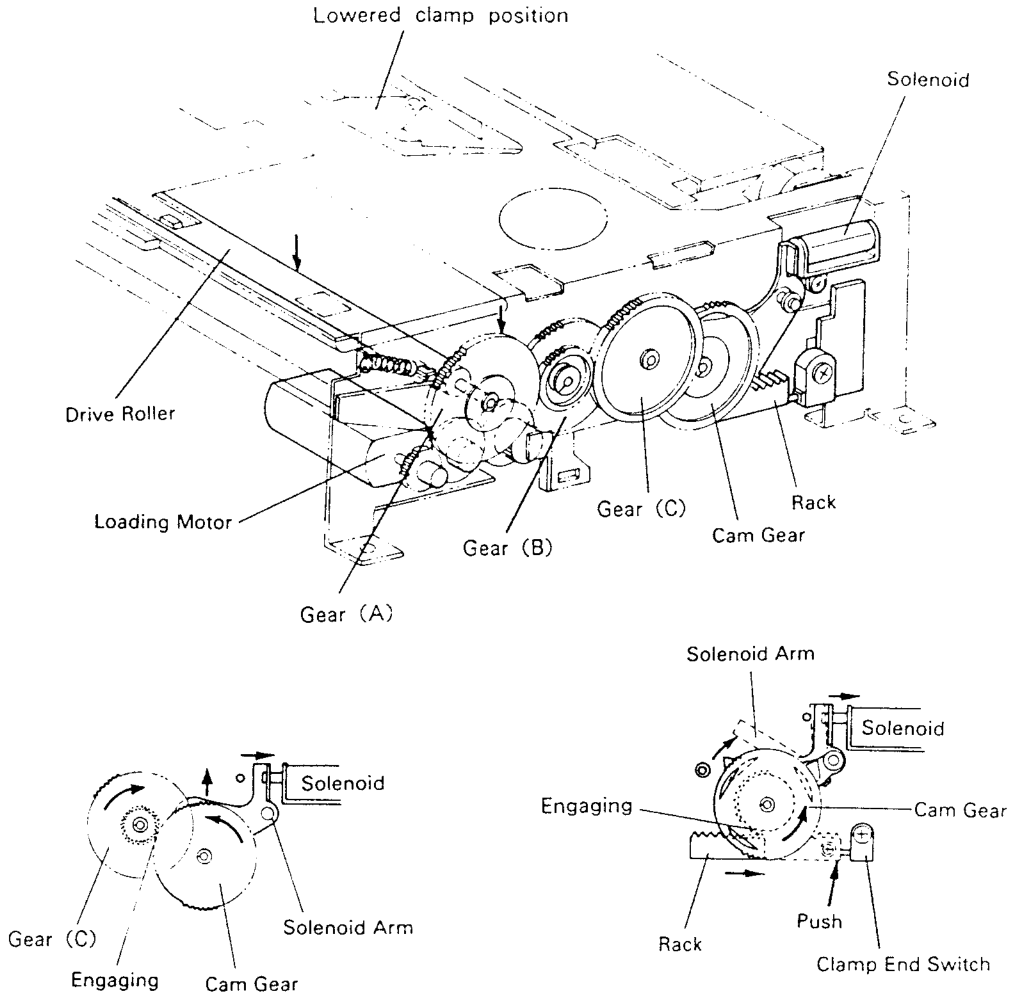

Lowered clamp position
Solenoid
Drive Roller
Loading Motor
Gear (A)
Gear (B)
Gear (C)
Cam Gear
Rack
Solenoid Arm
Solenoid
Engaging
Cam Gear
Push
Rack
Clamp End Switch
Solenoid
Gear (C)
Engaging
Cam Gear
Solenoid Arm

Figure 8

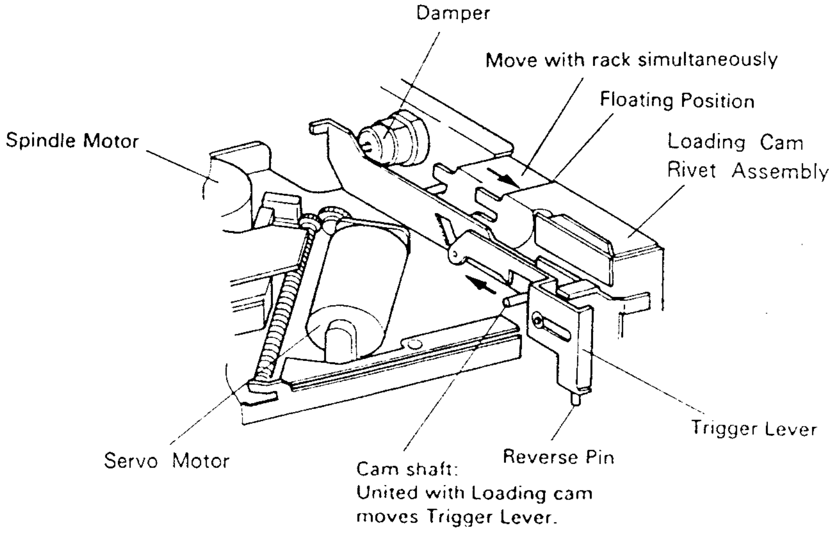

Damper
Move with rack simultaneously
Floating Position
Loading Cam
Rivet Assembly
Spindle Motor
Trigger Lever
Servo Motor
Reverse Pin
Cam shaft:
United with Loading cam
moves Trigger Lever.

Figure 9

Function	Step	Description	Illustration
PLAY	①	The spindle motor rotates the disc.	Figure 10
	②	The rotation of the servo motor is transmitted to the shaft screw through the gear, moves the pickup.	Figure 10
	③	The Inner limit switch detects the lead-in position of the disc, and the mechanism begins to read the information of the disc.	Figure 10

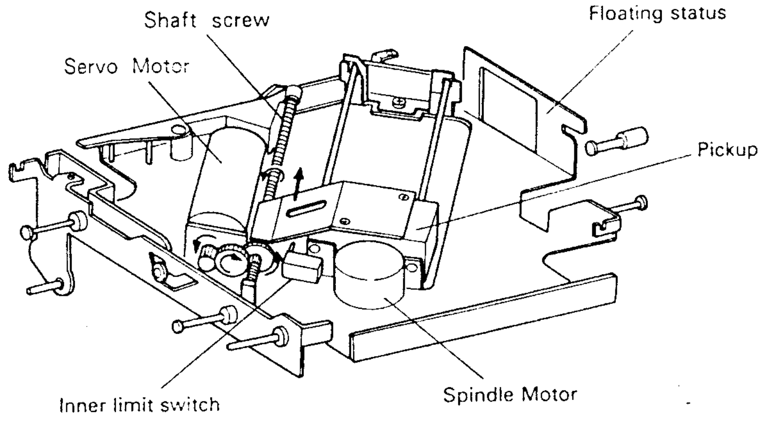


Figure 10

Function	Step	Description
EJECTION (of a 12cm CD)	①	The Loading motor rotates in the reverse direction when loading.
	②	Pulls the solenoid.
	③	The solenoid arm engaged with the solenoid starts rotating and the cam gear engages with the gear (C).
	④	The cam gear rotates and engages with the rack and then moves the rack in the left direction.
	⑤	Engaging with the movement of the rack, the following functions will be performed simultaneously. A. The clamper moves upward and releases the disc. B. The driving roller moves up and lifts the disc, and pinches the disc between it and the upper guide. C. Locks the pickup block. D. The reverse pin moves with engaging the levers (A) and (B), which moves the sensor gate mechanism to the original position.
	⑥	When the rack moves to the left, the engagements between the gear (C) and the cam gear, the cam gear and the rack will be released.

Function	Step	Description
EJECTION (of a 12cm CD)	⑦	The disc which is pinched between the drive roller and the upper guide moves to the outside of the mechanism. When the disc is sent out to the EJECT position, the beam broken by the disc is released and reaches the photo sensor (B).
	⑧	The mechanism detects that the disc has come out to the EJECT position and stops the motor rotation.
	⑨	The mechanism detects that all functions have finished when the disc is pulled out from the mechanism and beam is passed through to the photo sensor (A).
RELOAD (of a 12cm CD)	①	If the disc is not pulled out from the mechanism for 15 seconds after it comes to the EJECT position, the mechanism actuates the Loading function steps ① – ⑧.
EJECTION (of a 8cm CD)	① ② ③ ④	The same process as 12cm CD Eject operation steps ①~④.
	⑤	Engaging with the movement of the rack, the following functions will be performed simultaneously. A. B. C. — The same process as 12cm CD Eject operation step⑤ – A, B, C.
	⑥	The same process as 12cm CD Eject operation step ⑥.
	⑦	The disc which is pinched between the drive roller and the upper guide moves to the outside of the mechanism. The disc is released from the drive roller and stops.
	⑧	If the beam reaches the photo sensor (C) after 1.5 seconds from starting ejection, the motor stops.
	⑨	The mechanism detects that all functions have finished. when the disc is pulled out from the mechanism and beam is passed through to the photo sensor (A).

Function	Step	Description
TROUBLE SHOOTING (While Loading a 12cm CD)	①	If the beam to the photo sensor (D) is not broken within 3 seconds after the Loading motor begins rotating as described in the Loading operation step ②, the mechanism takes it as trouble and rotates the Loading motor inversely and pushes the disc out to the EJECT position.
	②	In the Loading step ④, if the beam does not reach the photo sensor (D) within 3 seconds after the beam to the photo sensor (B) is broken, the mechanism take it as trouble and rotates the loading motor inversely and push the disc out to the eject position. If the disc is removed and the beam reaches the photo sensor (A), the mechanism performs loading, chucking and ejection without a disc. (To place the sensor gate mechanism from the END position to the original position the mechanism operates the Ejection step ⑤ – d)
	③	When the disc is pulled out during the loading process, the Loading motor rotates inversely and stops the rotating after certain seconds.
(While loading a 8cm CD)	①	The same process as 12cm CD loading operation step①.
	②	The same process as 12cm CD loading operation step③.
(While Chucking)	①	In the chucking operation (step ①) if the Clamp End Switch doesn't turn on within 3 seconds after the solenoid is pulled, the mechanism takes it as trouble and rotates the Loading motor inversely and pushes the disc out and stops at the EJECT position. When the disc doesn't come to the EJECT position, the motor stops the rotating after certain seconds.
(While Playing)	①	After disc chucking, if the mechanism is unable to read the information of the disc for some reason, it actuates the EJECTION operation steps.
(While Ejecting a 12cm CD)	①	If the disc doesn't come to the EJECT position within 5 seconds after the solenoid is pulled in the EJECTION operation step ①, the mechanism takes it as trouble and rotates the Loading motor inversely and performs the Loading operation steps.
(While Ejecting a 8cm CD)	①	If the beam does not reach the photo sensor (C) within 1.5 seconds after starting ejection, the motor continues rotating. If the beam does not reach the photo sensor (C) within 5 seconds after starting ejection, the mechanism takes it as trouble and changes the motor rotating direction and performs loading steps.

Disassembly Instructions

● For DP24A01O/DP24A02O/ DP24A11O/DP24A11A/ DP24A21O/DP24A22O models

1. **Removal of the Load/Photo P. C. Boards**
   (1) Remove three screws marked with "○" as shown in Figures 11 and 12.
   (2) Remove the solder (c) as shown in Figure 11.

2. **Removal of the LED P. C. Board**
   (1) Remove the solder (b) as shown in Figure 12.
   (2) Remove the screw marked with "▲" as shown in Figure 12.

3. **Removal of the End Switch (A) P. C. Board**
   (1) Remove the two screws marked with "●" as shown in Figure 13.
   (2) Remove the two lead wires from the solenoid.

4. **Removal of the Pick-Up Unit**
   (1) Remove the cam gear and the gear (C) as shown in Figure 13.
   (2) Remove the four screws marked with "※" as shown Figures 13 and 14.
   (3) Both the Pick-Up Unit and Rivet Loading Bracket Assembly will be removed.

   Note :The cam gear and gear (C) are mounted with washers. Do not lose the washers, keep them carefully.

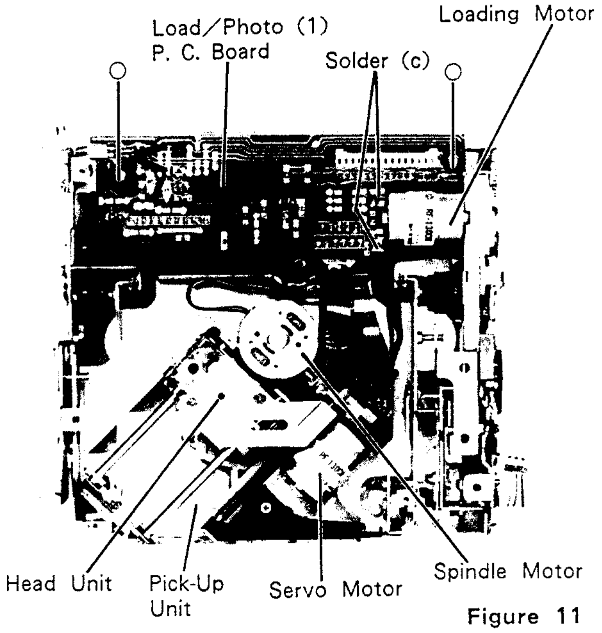

Load/Photo (1)
P. C. Board
Loading Motor
Solder (c)
○
○
Head Unit
Pick-Up Unit
Servo Motor
Spindle Motor

Figure 11

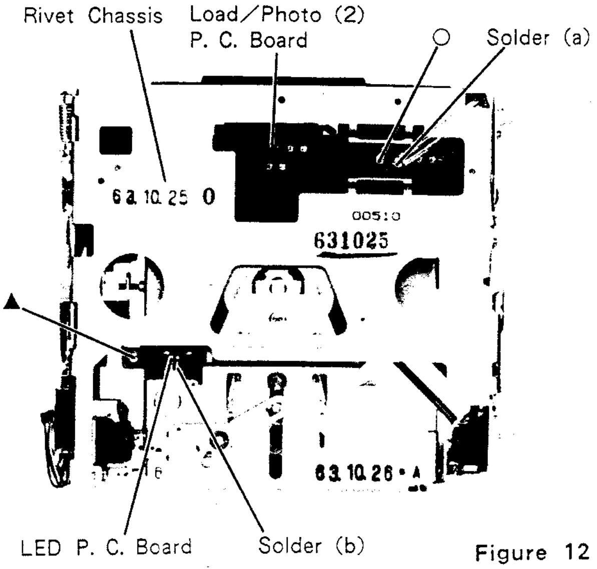

Rivet Chassis
Load/Photo (2)
P. C. Board
○
Solder (a)
▲
63.10.25 0
005:0
631025
63.10.26 • A
LED P. C. Board
Solder (b)

Figure 12

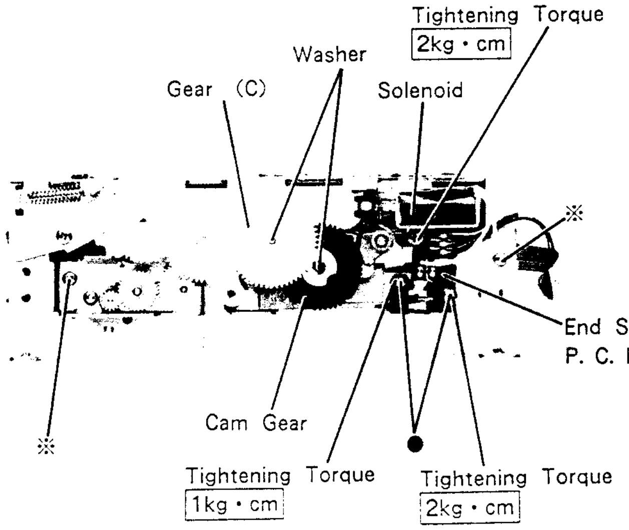

Tightening Torque
2kg • cm
Washer
Gear (C)
Solenoid
※
End Switch (A)
P. C. Board
Cam Gear
※
●
Tightening Torque
1kg • cm
Tightening Torque
2kg • cm

Figure 13

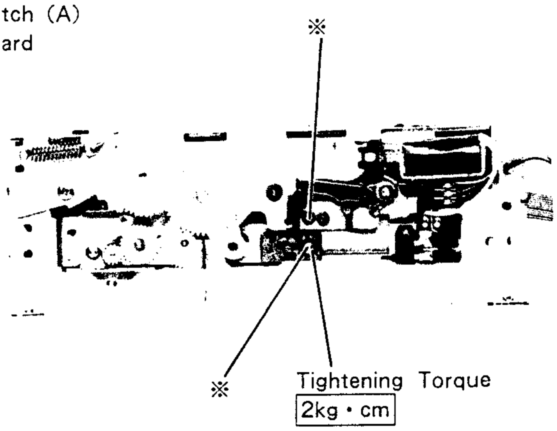

※
※
Tightening Torque
2kg • cm

Figure 14

5. **Removal of the Rivet Loading Bracket Assembly**
   (1) After removing the Pick-Up Unit, pull the Rivet Loading Bracket Assembly toward you while twisting it in the direction shown by the arrow, as shown in Figure 15.

6. **Removal of the Servo Motor [For DP24A010 / DP24A020 / DP24A110 / DP24A11A / DP24A210 models only]**
   (1) After removing the Rivet Loading Bracket Assembly, remove the two screws marked with "□" as shown in Figure 16.
   Note : Both the Servo Motor and Flexible wire will be removed. Do not damage the flexible wire.

7. **Removal of the Head Unit [For DP24A010/DP24A020/DP24A110/DP24A11A/DP24A210 models only]**
   (1) After removing the Servo Motor, remove the two screws marked with "◆" as shown in Figure 16.

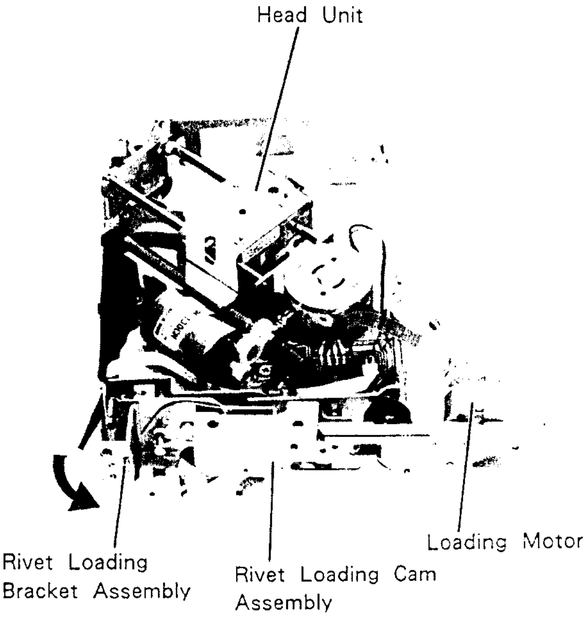

Head Unit
Rivet Loading Bracket Assembly
Rivet Loading Cam Assembly
Loading Motor

Figure 15

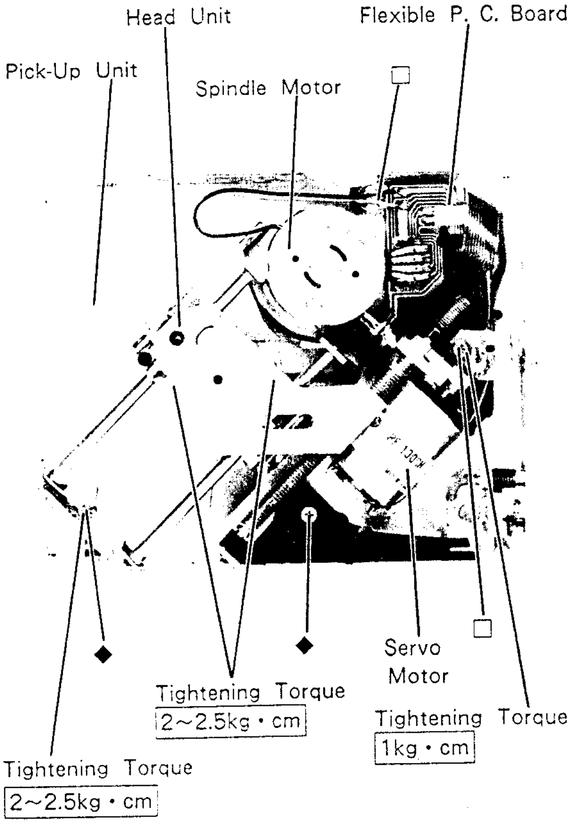

Head Unit
Flexible P. C. Board
Pick-Up Unit
Spindle Motor
□
◆
◆
Servo Motor
□
Tightening Torque
2~2.5kg · cm
Tightening Torque
1kg · cm
Tightening Torque
2~2.5kg · cm

Figure 16

6. **Removal of the Servo Motor [For DP24A220 models only]**

(1) After removing the Rivet Loading Bracket Assembly, remove the two screws marked with "□" as shown in Figure 17.

Note :Both the Servo Motor and Flexible wire will be removed. Do not damage the flexible wire.

7. **Removal of the Head Unit [For DP24A220 models only]**

(1) After removing the Servo Motor, remove the five screws marked with "◆" as shown in Figure 17.

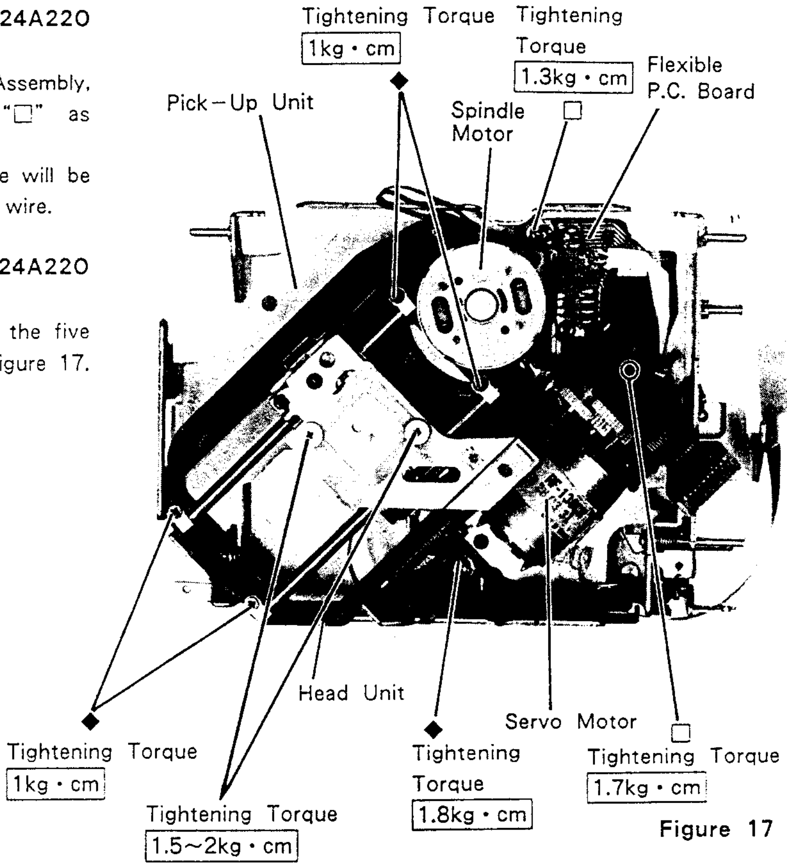

Tightening Torque 1kg • cm ◆
Tightening Torque 1.3kg • cm
Flexible P.C. Board
Pick－Up Unit
Spindle Motor
□
Head Unit
◆ Tightening Torque 1kg • cm
Tightening Torque 1.5~2kg • cm
◆ Tightening Torque 1.8kg • cm
Servo Motor
□ Tightening Torque 1.7kg • cm

Figure 17

8. **Removal of the Rivet Loading Cam Assembly**

(1) After removing the Rivet Loading Bracket Assembly, remove the gear (D) and gear (E) as shown in Figure 18.

(2) Remove the Washer and "E" ring as shown in Figures 18 and 20.

Note : 1) Do not lose the washer and "E" ring and keep them carefully.

2) Remove the spring and them at the same time as shown in Figure 18.

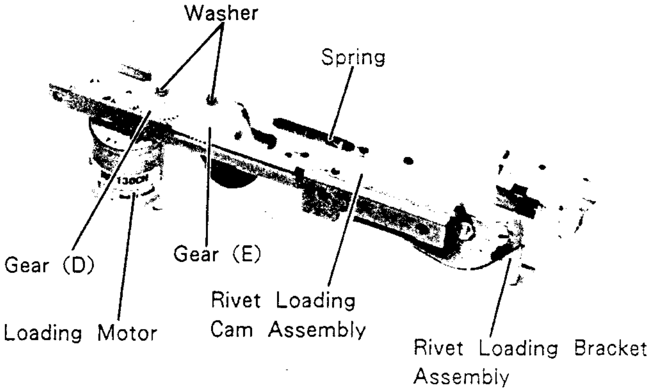

Washer
Spring
Gear (D)
Gear (E)
Loading Motor
Rivet Loading Cam Assembly
Rivet Loading Bracket Assembly

Figure 18

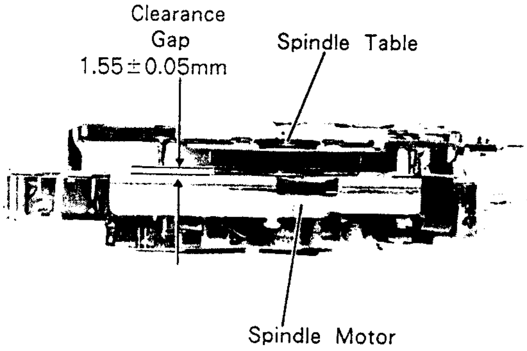

Clearance Gap 1.55±0.05mm
Spindle Table
Spindle Motor

Figure 19

9. Removal of the Loading Motor.

(1) After removing the Rivet Loading Cam Assembly, remove the two screws marked with "△" as shown in Figure 20.

※Useful hints for remounting the cam gear and gear (C).

(1) Set the Rivet Loading cam Assembly to the loading position as shown in Figure 21.

(2) Engage the cam gear with the gear (C) as shown in the Figure 22, and mount them on the shafts (A) of the Arm Load (R) Assembly as shown in Figure 21.

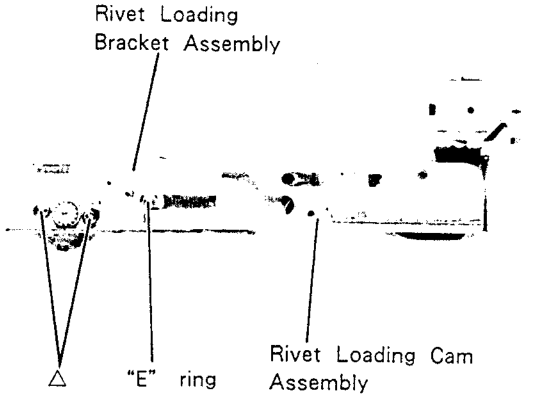

Rivet Loading Bracket Assembly
△
"E" ring
Rivet Loading Cam Assembly

Figure 20

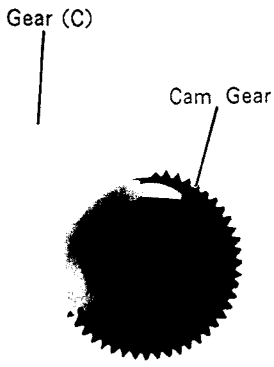

Gear (C)
Cam Gear

Figure 22

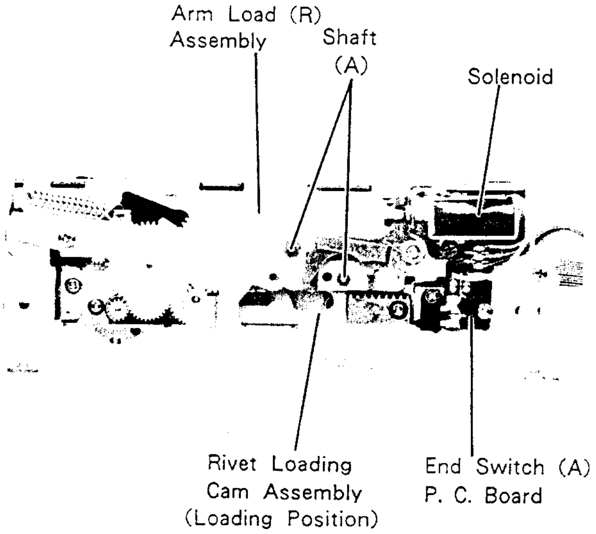

Arm Load (R) Assembly
Shaft (A)
Solenoid
Rivet Loading Cam Assembly (Loading Position)
End Switch (A) P. C. Board

Figure 21

※Caution on remounting the Servo Motor.

(1) After mounting the servo motor, make sure the clearance between the servo motor and flexible wire is more than 0.5mm as shown in Figure 23.

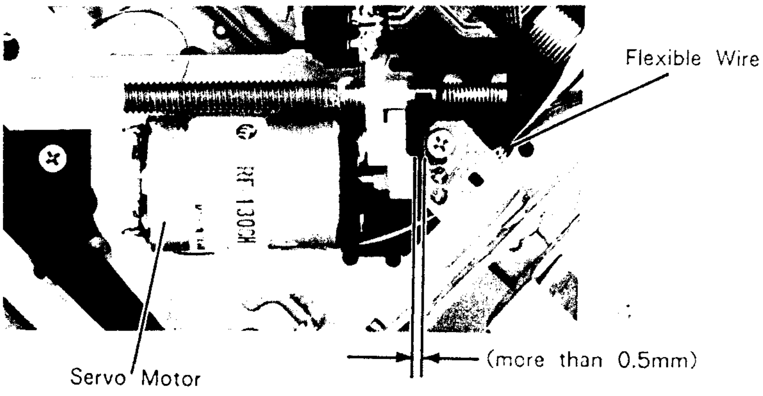

Flexible Wire
Servo Motor
(more than 0.5mm)

Figure 23

CD Mechanism Assembly Parts List

●For DP24A010/DP24A020/DP24A110/DP24A11A/DP24A210 Models

Symbol No.	Index	Part No.	Description		
202	4-H	15C13518W01	Guide, Top (DP-2)		
203	5-C	03S44205G14	Screw, Pan (M2 × 5)		
204	5-B	30T73687F18	Parallel Wire (2P)		
205	4-C	41B12249W02	Spring, Pull		
206		04B41345P06	Washer, Lock (M2.1)		
207	1-E	41A20219W01	Spring, ROL (L)		
208	5-F	45A90817F01	Arm, Solenoid (1)		
209	5-F	45A90818F01	Arm, Solenoid (2)		
210	5-F	41A92364F01	Spring, Solenoid		
211	2-F	07B10907W01	Stopper, Disc		
212	4-F	47A61544F02	Plunger, RF Solenoid		
213	3-G	75A20934W01	Cushion, Magnet (B)		
214	4-F	84A92276F01	END Switch (A) P.C. Board		
215		03D40014G66	Screw, W/Washer (M2 × 3.5)		
216		03D40014G07	Screw, W/Washer (M2 × 4)		
217	4-F	44B90838F01	Gear, Cam		
218	4-C	46A91007F02	Stud, Gear		
219	4-E	41B12249W07	Spring, Pull		
221	2-F	49B90822F01	Roller (G)		
223		43A90873F01	Bush, Roller		
225	4-C	41A90877F01	Spring, Cam		
226		03D40014G62	Screw, W/Washer (M2 × 3)		
227	5-C	44A90836F01	Gear (D)		
228	5-C	44A90837F01	Gear (E)		
229	5-C	04B41345P01	Washer, Lock (M1.2)		
230		75B11922W02	Damper, DP-3		
231		15A12929W01	Holder, Damper-3		
232	4-D	04C42091G06	Ring "E" (M1.5)		
233	5-C	04C42091G11	Ring "E" (M2.5)		
234	3-C	03S94385F01	Screw, Pan (M1.7 × 2.3)		
236	4-C	41A11905W01	Spring, Trigger		
237	4-F	04C42091G05	Ring "E" (M2)		
238	2-B	07A10921W01	Bracket, Shaft		
239	4-A	03A90175F05	Screw, Bind (M2 × 3.7)		
240		03S94385F09	Screw, Pan (M2 × 3)		
241	4-A	03D40014G75	Screw, W/Washer (M2 × 9)		
242	3-B	03D40121T38	Screw, W/Double Washer (M2 × 5)		
243	3-E	43A22104W01	Table, Spindle		
244	3-B	07B10923W01	Bracket, Screw		
245	2-C	47A20146W01	Shaft, Pick-up		
246	4-D	43A11901W01	Bush, Triger (A)		
247		04B41345P15	Washer, Lock (M1.2)		
248	3-D	01B12125W01	Assy., Riv. Pick Chassis		
249	3-B	47A10927W01	Shaft, Screw		
250	3-B	44A90998F01	Gear, Screw		
252	4-B	44A90996F01	Gear, Motor		
253	4-G	41B12249W08	Spring, Pull		
254	4-C	44A90997F01	Gear, Middle		
255		04B41345P02	Washer, Lock (M1.7)		
256	4-F	03S94385F23	Screw, Pan (M2 × 5)		
257	5-D	03S94385F07	Screw, Pan (M2 × 2)		
258	3-C	07C10922W01	Bracket, Motor		
259	4-B	41A10928W03	Spring, Shaft		
262	5-G	04S40075G12	Washer, Polyslider (M3.1)		
263	3-B	41C10925W01	Spring, Nut		
264	3-E	14A96087F01	Sheet, Table		
265	4-B	84T15149W01	FPC Actuate P.C.Board		
266	4-E	01A12222W01	Assy., Clamper Rivet		
267	4-E	01B12123W01	Assy., Riv. Arm Clamp		
269	3-F	41A11903W01	Spring, Lever		
270	3-F	04B41345P04	Washer, Lock (M2.6)		
271	3-E	07A30152W01	Bracket, Disc Stopper		
272	3-F	41B12249W01	Spring, Pull		
273	4-F	07A11468W01	Plate, Top		
274	5-C	44A90830F01	Rack, Cam		
275	4-F	03S44205G94	Screw, Pan (M1.7 × 2)		
277	2-B	47A21175W01	Shaft, Pick-up		
279	1-C	41B12249W03	Spring, Pull		
280	2-E	41B12249W04	Spring, Pull		
281	4-D	41B12249W05	Spring, Pull		

NOTE: The parts without part numbers are not supplied.

Symbol No.	Index	Part No.	Description		
282	4-B	43A20208W01	Spacer, LED		
283	4-E	30T73687F19	Parallel Wire (2P)		
284	3-D	01A92321F02	Assy., Bracket		
			Rivet (CLP−LP)		
287	5-G	01T15181W01	Assy., Clutch DP		
288	2-C	75A21138W01	Sheet, Shaft		
289		03A90175F01	Screw, Bind (M2 × 4)		
290		03A90175F02	Screw, Bind (M2 × 3)		
291	4-E	41B90875F07	Spring, Pull		
292	5-F	44A90834F01	Gear (B)		
293	4-F	44A90835F01	Gear (C)		
294	3-C	43A13508W01	Spacer, Shaft		
295	3-F	41A96086F01	Spring, Arm Clamp		
296	3-F	43A41006F01	Spacer, Polyslider		
297	3-C	43A22457W01	Spacer		
or		43A22457W02	Spacer		
298	2-G	75A20928W01	Rubber, Top Chassis		
299	4-F	04B41345P24	Washer, Lock (M2.1)		
300	4-A	43A20208W02	Spacer, LED (A)		
301	4-F	03S94385F14	Screw, Countersink (M2.6 × 3)		
302		03S94385F25	Screw, Pan (M2 × 4)		
303	4-E	75A20128W01	Sheet, Holder		
304	4-G	03S44205G96	Screw, Bind (M2 × 5)		
305	4-G	03S44205G95	Screw, Bind (M2 × 3)		
306	3-E	03S94385F24	Screw, Pan (M2 × 3)		
Miscellaneous					
501	3-C	88T15309W01	Pick-up, Unit		
502	4-E	48T16057W02	LED, AN501 (RED)		
503	4-D	01V13100W97	Assy., Motor Load		
504	3-C	59T91005F01	Motor, Spindle		
505	3-B	59T52973F03	Motor, Servo		
506	4-B	48T92913F01	Transistor, Photo PT360		
507	4-F	40T71025F03	Switch, Detector (CAM END)		
508	3-A	40T71025F01	Switch, Detector (LIMIT)		
509	4-F	01A90816F01	Assy., Solenoid DP Frame		

Symbol No.	Index	Part No.	Description		

NOTE : The parts without part numbers are not supplied.

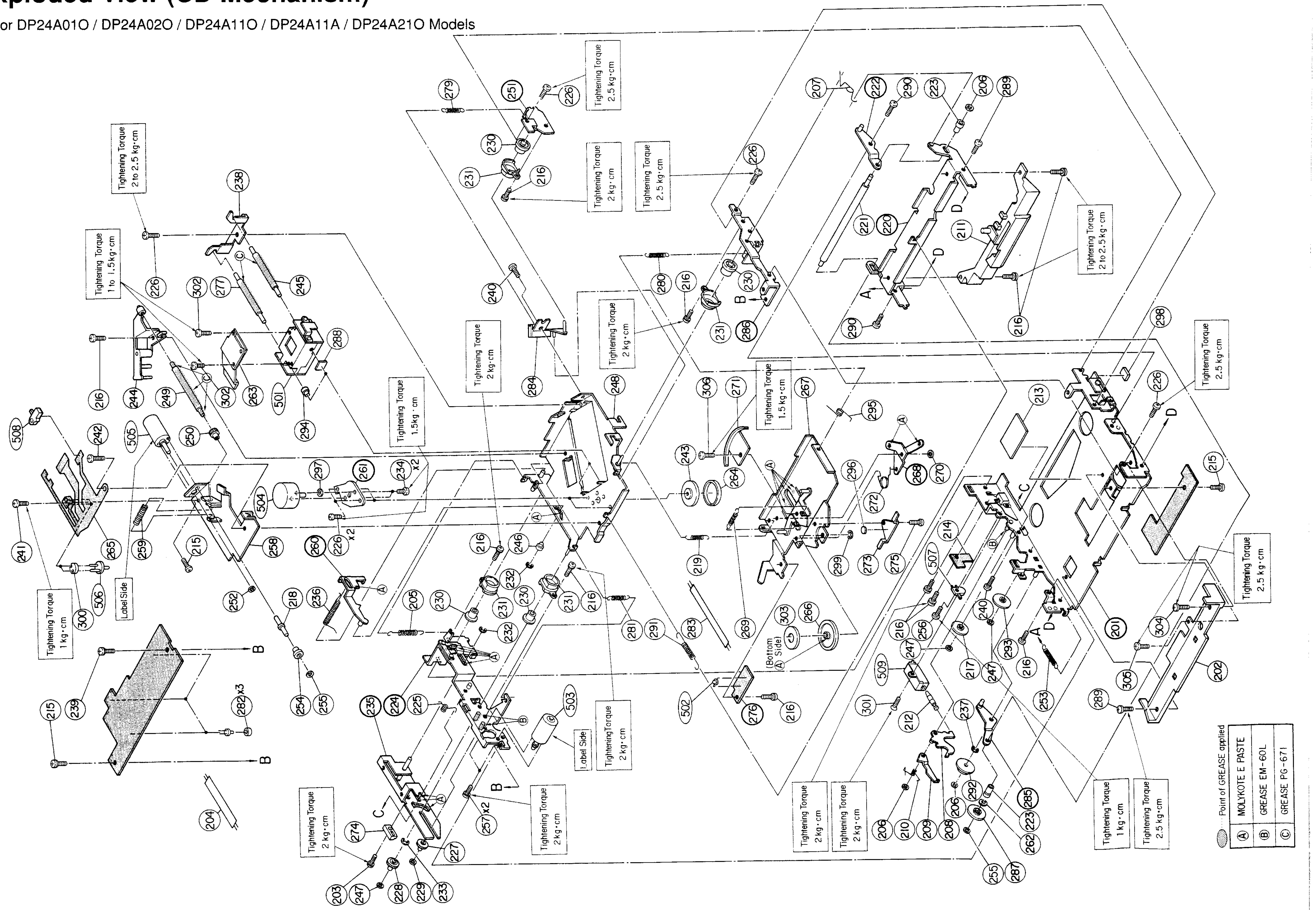
Symbol No.	Index	Part No.	Description		
281	4-D	41B12249W05	Spring, Pull		
282	4-B	43A20208W01	Spacer, LED		
283	4-E	30T73687F19	Parallel Wire (2P)		
284	3-D	01A92321F02	Assy., Bracket Rivet (CLP−LP)		
287	5-G	01T15181W01	Assy., Clutch DP		
288		07A30961W01	Stopper, Shaft (B)		
289		03A90175F01	Screw, Bind (M2 × 4)		
290		03A90175F02	Screw, Bind (M2 × 3)		
291	4-E	41B90875F07	Spring, Pull		
292	5-F	44A90834F01	Gear (B)		
293	4-F	44A90835F01	Gear (C)		
294		03S70494F14	Screw, Pan (M1.7 × 4)		
295	3-F	04S40075G06	Washer, Plyslider (M2.1)		
296	3-F	43A41006F01	Spacer, Polyslider		
297	3-E	03S94385F24	Screw, Pan (M2 × 3)		
298	2-G	75A20928W01	Rubber, Top Chassis		
299	4-F	04B41345P24	Washer, Lock (M2.1)		
300	4-A	43A20208W02	Spacer, LED (A)		
301	4-F	03S94385F14	Screw, Countersink (M2.6 × 3)		
302	2-B	03S94385F25	Screw, Pan (M2 × 4)		
303	4-E	75A20128W01	Sheet, Holder		
304	4-G	03S44205G96	Screw, Bind (M2 × 5)		
305	4-G	03S44205G95	Screw, Bind (M2 × 4)		
Miscellaneous					
501	3-C	88T15309W01	Pick-up, Unit		
502	4-E	48T16057W02	LED, AN501 (RED)		
503	4-D	01V13100W97	Assy., Motor Load		
504	3-C	59T91005F02	Motor, Spindle		
505	3-B	59T52973F03	Motor, Servo		
506	4-B	48T92913F01	Transistor, Photo PT360		
507	4-F	40T71025F03	Switch, Detector (CAM END)		
508	3-A	40T71025F01	Switch, Detector (LIMIT)		
509	4-F	01A90816F01	Assy., Solenoid DP Frame		

NOTE : The parts without part numbers are not supplied.

Symbol No.	Index	Part No.	Description		

Exploded View (CD Mechanism)

- For DP24A01O / DP24A02O / DP24A11O / DP24A11A / DP24A21O Models



Tightening Torque 2.5 kg·cm
Tightening Torque 2 to 2.5 kg·cm
Tightening Torque 1 to 1.5kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 1.5kg·cm
Tightening Torque 1.5 kg·cm
Tightening Torque 2 to 2.5kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2kg·cm
Label Side
(Bottom Side) Ⓐ
x2
x3
A
B
C
D
Ⓐ
Ⓑ
Ⓒ
201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 501 502 503 504 505 506 507 508 509
Point of GREASE applied
Ⓐ MOLYKOTE E PASTE
Ⓑ GREASE EM-60L
Ⓒ GREASE PG-671
1
2
3
4
5
A
B
C
D
E
F
G
H

CD Mechanism Assembly Parts List

● For DP24A220 Model

Symbol No.	Index	Part No.	Description		
202	4-H	15C13518W01	Guide, Top (DP−2)		
203	5-C	03S44205G14	Screw, Pan (M2 × 5)		
204	5-B	30T73687F18	Parallel Wire (2P)		
205	4-C	41B12249W02	Spring, Pull		
206		04B41345P06	Washer, Lock (M2.1)		
207	1-E	41A20219W01	Spring, ROL (L)		
208	5-F	45A90817F01	Arm, Solenoid (1)		
209	5-F	45A90818F01	Arm, Solenoid (2)		
210	5-F	41A92364F01	Spring, Solenoid		
211	2-F	07B10907W01	Stopper, Disc		
212	4-F	47A61544F02	Plunger, RF Solenoid		
213	3-G	75A20934W01	Cushion, Magnet (B)		
214	3-F	84A92276F01	END Switch (A) P.C. Board		
215		03D40014G66	Screw, W／Washer (M2 × 3.5)		
216		03D40014G07	Screw, W／Washer (M2 × 4)		
217	4-F	44B90838F01	Gear, Cam		
218	4-C	46A91007F02	Stud, Gear		
219	4-E	41B12249W07	Spring, Pull		
221	2-F	49B90822F01	Roller (G)		
223		43A90873F01	Bush, Roller		
225	4-C	41A90877F01	Spring, Cam		
226		03D40014G62	Screw, W／Washer (M2 × 3)		
227	5-C	44A90836F01	Gear (D)		
228	5-C	44A90837F01	Gear (E)		
229	5-C	04B41345P01	Washer, Lock (M1.2)		
230		75B11922W02	Damper, DP−3		
231		15A12929W01	Holder, Damper−3		
232		04C42091G06	Ring "E" (M1.5)		
233	5-C	04C42091G11	Ring "E" (M2.5)		
234	3-C	27C30861W01	Base, Pick-up		
236	4-C	41A11905W01	Spring, Trigger		
237	4-F	04C42091G05	Ring "E" (M2)		
238	3-D	03S94385F26	Screw Countersink (M1.7×2.6)		
239	4-A	03A90175F05	Screw, Bind (M2 × 3.7)		
240		03S94385F09	Screw, Pan (M2 × 3)		
241	4-A	03S94385F20	Screw, Pan (M2 × 8.5)		
242	3-B	03D40121T38	Screw, W／Double Washer (M2 × 5)		
243	3-E	43A30923W01	Table, Spindle		
244	3-B	07B10923W01	Bracket, Screw		
245		47A30925W01	Shaft, Pick-up		
246	4-D	43A11901W01	Bush, Triger (A)		
247		04B41345P15	Washer, Lock (M1.2)		
248	3-D	01B12125W01	Assy., Riv. Pick Chassis		
249	3-B	47A10927W02	Shaft, Screw		
250	3-B	44A90998F01	Gear, Screw		
252	4-B	44A90996F01	Gear, Motor		
253	4-G	41B12249W08	Spring, Pull		
254	4-C	44A90997F01	Gear, Middle		
255		04B41345P02	Washer, Lock (M1.7)		
256	4-F	03S94385F23	Screw, Pan (M2 × 5)		
257	5-D	03S94385F07	Screw, Pan (M2 × 2)		
258	3-C	07C10922W01	Bracket, Motor		
259	4-B	41A10928W03	Spring, Shaft		
261		03D40014G02	Screw, W／Washer (M2 × 6)		
262	3-E	41A10928W04	Spring, Comp		
263	3-B	41C10925W02	Spring, Nut		
264	3-E	14A96087F01	Sheet, Table		
265	4-B	84T15149W01	FPC Actuate P.C.Board		
266	4-E	01A31429W01	Assy., Clamper Rivet		
267	3-E	01B12123W01	Assy., Riv. Arm Clamp		
269	4-E	41A11903W01	Spring, Lever		
270	3-F	04B41345P04	Washer, Lock (M2.6)		
271	3-E	07A30152W01	Bracket, Disc Stopper		
272	3-F	41B12249W01	Spring, Pull		
273	4-F	07A11468W01	Plate, Top		
274	5-C	44A90830F01	Rack, Cam		
275	4-F	03S44205G94	Screw, Pan (M1.7 × 2)		
277	3-E	43B30924W01	Spindle, Hub		
279	1-C	41B12249W03	Spring, Pull		
280	2-E	41B12249W04	Spring, Pull		

NOTE : The parts without part numbers are not supplied.

Symbol No.	Index	Part No.	Description		
281	4-D	41B12249W05	Spring, Pull		
282	4-B	43A20208W01	Spacer, LED		
283	4-E	30T73687F19	Parallel Wire (2P)		
284	3-D	01A92321F02	Assy., Bracket Rivet (CLP−LP)		
287	5-G	01T15181W01	Assy., Clutch DP		
288		07A30961W01	Stopper, Shaft (B)		
289		03A90175F01	Screw, Bind (M2 × 4)		
290		03A90175F02	Screw, Bind (M2 × 3)		
291	4-E	41B90875F07	Spring, Pull		
292	5-F	44A90834F01	Gear (B)		
293	4-F	44A90835F01	Gear (C)		
294		03S70494F14	Screw, Pan (M1.7 × 4)		
295	3-F	04S40075G06	Washer, Plyslider (M2.1)		
296	3-F	43A41006F01	Spacer, Polyslider		
297	3-E	03S94385F24	Screw, Pan (M2 × 3)		
298	2-G	75A20928W01	Rubber, Top Chassis		
299	4-F	04B41345P24	Washer, Lock (M2.1)		
300	4-A	43A20208W02	Spacer, LED (A)		
301	4-F	03S94385F14	Screw, Countersink (M2.6 × 3)		
302	2-B	03S94385F25	Screw, Pan (M2 × 4)		
303	4-E	75A20128W01	Sheet, Holder		
304	4-G	03S44205G96	Screw, Bind (M2 × 5)		
305	4-G	03S44205G95	Screw, Bind (M2 × 4)		
Miscellaneous					
501	3-C	88T15309W01	Pick-up, Unit		
502	4-E	48T16057W02	LED, AN501 (RED)		
503	4-D	01V13100W97	Assy., Motor Load		
504	3-C	59T91005F02	Motor, Spindle		
505	3-B	59T52973F03	Motor, Servo		
506	4-B	48T92913F01	Transistor, Photo PT360		
507	4-F	40T71025F03	Switch, Detector (CAM END)		
508	3-A	40T71025F01	Switch, Detector (LIMIT)		
509	4-F	01A90816F01	Assy., Solenoid DP Frame		

Symbol No.	Index	Part No.	Description		

NOTE : The parts without part numbers are not supplied.

CD Mechanism Assembly Parts List

● For DP22A070/DP22A080/DP22A310/DP22A320 Models

Symbol No.		Index	Part No.	Description		
	202	4-H	15C13518W01	Guide, Top (DP−2)		
	203	5-C	03S44205G14	Screw, Pan (M2×5)		
	204	5-B	30T73687F18	Parallel, Wire (2P)		
	205		03A90175F01	Screw, Bind (M2×4)		
	206		04B41345P06	Washer, Lock (M2.1)		
	207	1-E	41A20219W01	Spring, ROL		
	208	5-F	45A90817F01	Arm, Solenoid. (1)		
	209	5-F	45A90818F01	Arm, Solenoid. (2)		
	210	5-F	41A92364F01	Spring, Solenoid.		
□	211	2-F	07B10907W02	Stopper, Disc		
☆	211	2-F	07B10907W02	Stopper, Disc		
◇	211	2-F	07B10907W02	Stopper, Disc		
	212	4-F	47A61544F02	Plunger, F/R		
	213	4-F	03S94385F14	Screw, Countersink (M2.6×3)		
	214	4-F	84A92276F01	END Switch (A) P.C. Board		
	215		03D40014G66	Screw, W/Washer (M2×3.5)		
	216		03D40014G07	Screw, W/Washer (M2×4)		
	217	4-F	44B90838F01	Gear, Cam		
	218	4-B	46A91007F01	Stud, Gear		
	219	4-E	41B12249W07	Spring, Pull		
	221	2-F	49B90822F01	Roller (G)		
	223		43A90873F01	Bush, Roller		
	225	4-C	41A90877F01	Spring, Cam		
	226		03D40014G62	Screw, W/Washer (M2×3)		
	227	5-C	44A90836F01	Gear (D)		
	228	5-C	44A90837F01	Gear (E)		
	229	5-C	04B41345P01	Washer Lock (M1.2)		
	230		75B11922W02	Damper, DP-3		
	231		15A12929W01	Holder, Damper DP-3		
	232		04C42091G06	Ring "E" (M1.5)		
	233		04C42091G11	Ring "E" (M2.5)		
	234	3-D	03S94385F01	Screw, Pan (M1.7×2.3)		
	236	4-B	41A11905W01	Spring, Trigger		
	237	3-F	04B41345P04	Washer, Lock (M2.6)		
	239		04B41345P24	Washer, Lock (M2.1)		
	240		03S94385F09	Screw, Pan (M2×3)		
	241		04B41345P15	Washer, Lock (M1.2)		
	242	3-F	30T73687F14	Parallel, Wire (3P)		
	243	3-E	43A22104W01	Table, Spindle		
	244	3-A	07A90992F01	Bracket, Screw		
	245	3-D	47A91004F01	Shaft, Pick-up		
	246	4-D	43A11901W01	Bush, Trigger (A)		
	247		03S94385F10	Screw, Pan (M2×4)		
	248	3-E	07A92196F01	Bracket, Flex Wire		
	249	3-C	03A91001F01	Shaft, Screw		
	250	3-C	44A90998F01	Gear, Screw		
	252	4-B	44A90996F01	Gear, Motor		
	253	4-G	41B12249W08	Spring, Pull		
	254	4-B	44A90997F01	Gear, Middle		
	255	4-B	04B41345P13	Washer, Lock (M1.7)		
	256	4-F	03S94385F23	Screw, Pan (M2×5)		
△	257	1-A	03S44205G42	Screw, Pan (M2.6×4)		
□	257	1-A	03S44205G42	Screw, Pan (M2.6×4)		
◇	257	1-A	03S44205G42	Screw, Pan (M2.6×4)		
	258	3-B	01V91700F07	Assy., Motor Unit		
	259	3-A	41A90999F01	Spring, Screw		
	261	1-C	41B21241W02	Spring, Pull		
	262	2-C	30T92773F01	Cable, Flex (16P)		
	263	2-B	26A94948F01	Shield		
△	263	2-B	26A94948F01	Shield		
□	263	2-B	26A94948F01	Shield		
◇	263	2-B	26A94948F01	Shield		

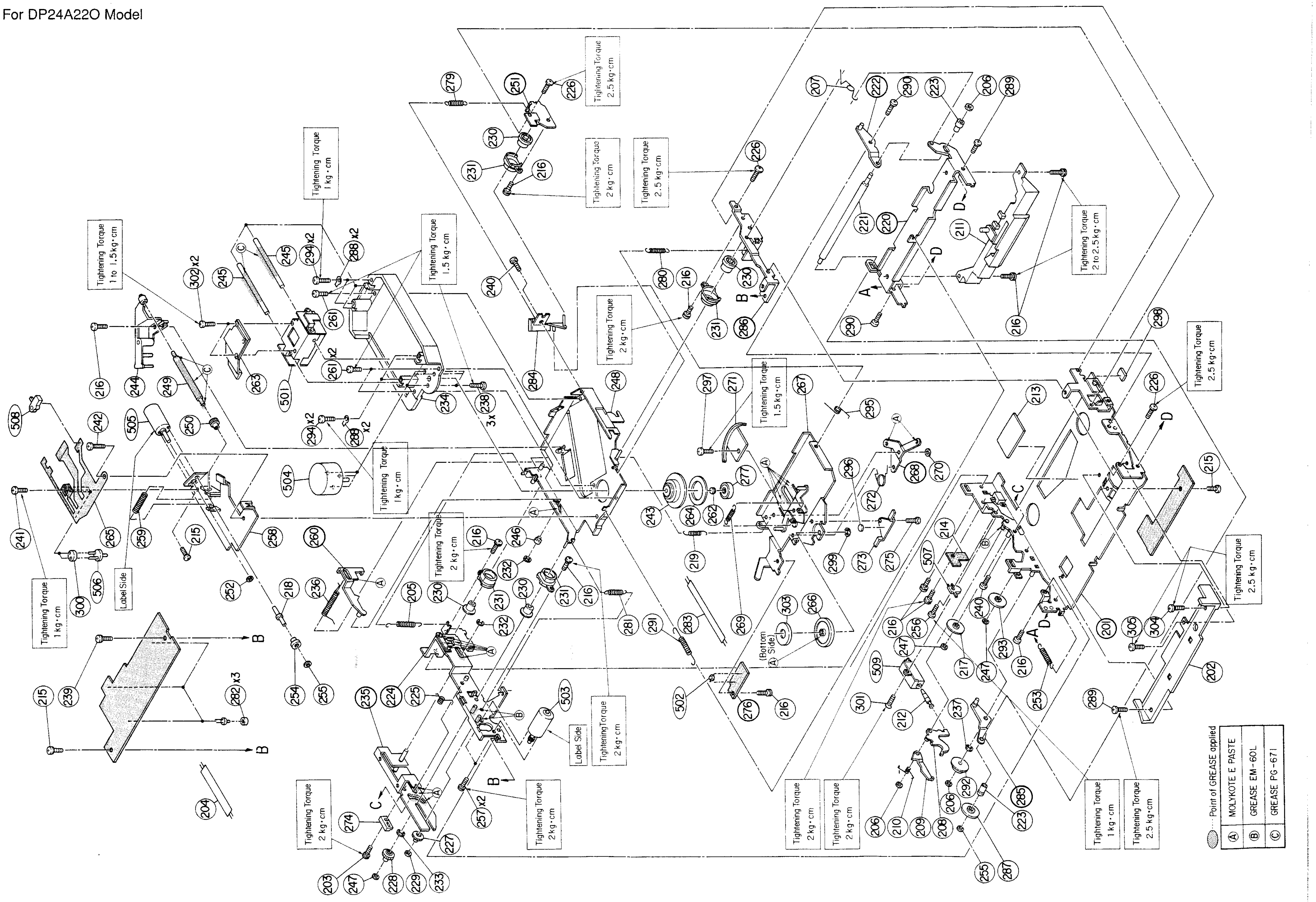
Notes : The parts without part numbers are not supplied.
△ : For DP22A07O model only, □ : For DP22A08O model only, ☆ : For DP22A31O model only,
◇ : For DP22A32O model only, Others : Common

Symbol No.		Index	Part No.	Description		
	264	3-E	14A96087F01	Sheet, Table		
	265	4-B	84T15747W01	FPC Actuator P. C. Board		
	266	4-E	01A12222W01	Assy., Clamper Rivet		
	267	3-E	01B12123W01	Assy., Riv. Arm Clamp		
	269	3-F	41B12249W01	Spring, Slider		
	270		43A90995F01	Stopper, Shaft		
	271	3-E	07A30152W01	Bracket, Disc Stopper		
	272	4-E	41A11903W01	Spring, Lever		
	273	4-F	07A11468W01	Plate, Top		
	274	5-C	44A90830F01	Rack, Cam		
	275	4-F	03S44205G94	Screw, CounterSink (M2.6 × 8)		
△	277	2-C	01V23100W27	Assy., Pick-up Unit-S2		
□	277	2-C	01V24900W02	Assy., Pick-up Unit-S2		
☆	277	2-C	01V24900W02	Assy., Pick-up Unit-S2		
◇	277	2-C	01V24900W02	Assy., Pick-up Unit-S2		
	279	4-C	41B21241W01	Spring, Pull		
	280	2-E	41B21241W03	Spring, Pull		
	281	4-D	41B21241W04	Spring, Pull		
	282	5-B	43A20208W01	Spacer, LED		
	283	4-E	30T73687F20	Parallel, Wire (2P)		
	284	3-D	01A92321F02	Assy., Bracket, Rivet (CLP-LP)		
	287	5-F	01T15181W01	Assy., DP Clutch		
	288	5-F	04B41345P02	Washer, Lock (M1.7)		
	290		03A90175F02	Screw, Bind (M2×3)		
	291	4-E	41B90875F07	Spring, Pull		
	292	5-F	44A90834F01	Gear (B)		
	293	4-F	44A90835F01	Gear (C)		
	295	4-D	43A20208W03	Spacer, LED (A)		
	296	4-E	75A20128W01	Sheet, Holder		
	297		03S94385F10	Screw, Pan (M2×4)		
	298	3-B	03S94385F12	Screw, Pan (M2.6×6)		
	299	3-A	43A41006F05	Spacer, Polyslider		
	300	3-C	07A90993F01	Bracket, Pick-up		
	301	2-D	01A90994F01	Spring, Nut		
	302	3-D	03S94385F03	Screw, Pan (M1.7×1.8)		
	303	3-E	84T90887F01	FPC PHOTO P. C. Board		
	304	3-D	14S71058F40	Insulator, Cover		
	305	3-D	03S94385F06	Screw, Pan (M2×1.8)		
	306	3-B	41A94452F01	Spring, Motor		
	307	3-E	14A28008W01	Spacer		
	308	3-F	41A96086F01	Spring, Arm Clamp		
	309	3-F	43A41006F01	Spacer, Polyslider		
	310	3-E	03S94385F24	Screw, Pan (M2 × 3)		
	311	4-G	03S44205G96	Screw, Bind (M2 × 5)		
	312	4-G	03S44205G95	Screw, Bind (M2 × 4)		
Miscellaneous						
	501	3-C	88T90878F01	Pick-up, Unit		
	502	4-E	48T16057W02	LED, AN501-B1 (RED)		
	503	4-D	01V21900W45	Assy., Motor Load		
	504	3-B	59T90879F01	Motor, Servo		
	505	3-C	59T91005F01	Motor, Spindle		
	506	3-D	48T92913F01	Transistor, Photo PT360		
	507	4-F	40T71025F03	Switch, Detector		
	508	3-B	40T71025F01	Switch, Detector		
	509	4-F	01A90816F01	Assy., Solenoid DP Frame		

Notes : The parts without part numbers are not supplied.
△ : For DP22A07O model only, □ : For DP22A08O model only, ☆ : For DP22A31O model only,
◇ : For DP22A32O model only, Others : Common

Exploded View (CD Mechanism)

- For DP24A22O Model


1
2
3
4
5
Tightening Torque 2.5 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 1 to 1.5 kg·cm
Tightening Torque 1.5 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 1.5 kg·cm
Tightening Torque 2 to 2.5 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2.5 kg·cm
Label Side
Label Side
(Bottom Side)
279
251
226
230
231
216
207
222
290
223
206
289
221
220
211
290
216
226
280
216
230
286
231
240
284
248
245
294 x2
288 x2
245
302 x2
261
261 x2
263
501
234
238
3x
216
244
249
508
242
505
250
294 x2
288 x2
504
241
265
259
215
258
300
506
252
260
218
236
205
216
230
231
232
246
232
230
231
216
281
243
264
262
277
297
271
267
295
296
268
270
272
273
275
299
219
213
298
226
215
214
507
201
305
304
202
283
269
303
266
291
502
276
216
239
282 x3
215
254
255
235
224
225
503
257 x2
204
274
203
247
228
229
233
227
216
256
247
217
247
240
293
216
253
509
301
212
237
206
210
209
208
206
292
285
223
255
287
289
A
B
C
D

▨	···Point of GREASE applied
Ⓐ	MOLYKOTE E PASTE
Ⓑ	GREASE EM-60L
Ⓒ	GREASE PG-671

Disassembly Instructions

● For DP22A070/DP22A080/DP22A310/DP22A320 models

1. Removal of Main P. C. Board

(1) Unsolder the solder (a) as shown in Figure 24.

(2) Remove two screws marked "○" as shown in Figure 24.

(3) Disconnect all connectors from the Main P. C. Board while lifting up the Main P. C. Board A section.

Note : When unsoldering the solder (a), take care not to break the parallel wire.

2. Removal of Interface P. C. Board

(1) After removing the Main P. C. Board, unsolder the solder (b) as shown in Figure 25.

(2) Remove two screws marked "×" as shown in Figure 25.

(3) Remove two jumper wires connected to the loading motor.

Note : When unsoldering the solder (b), take care not to break the parallel wire.

3. Removal of Sensor P. C. Board

(1) Unsolder the solder (c) as shown in Figure 26.

(2) Remove one screw marked "△" as shown in Figure 26.

Note : When unsoldering the solder (c), take care not to break the parallel wire.

4. Removal of End Switch P. C. Board

(1) Unsolder the solder (d) and (e) as shown in Figure 27.

(2) Remove two screws marked "□" as shown in Figure 27.

Note : When unsoldering the solder (d), take care not to break the parallel wire.

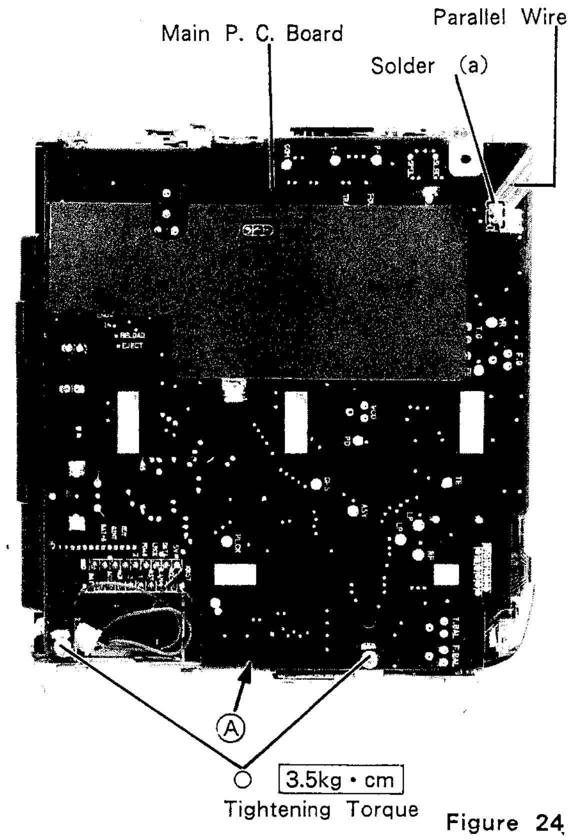

Main P. C. Board
Parallel Wire
Solder (a)
Ⓐ
○ 3.5kg・cm
Tightening Torque

Figure 24

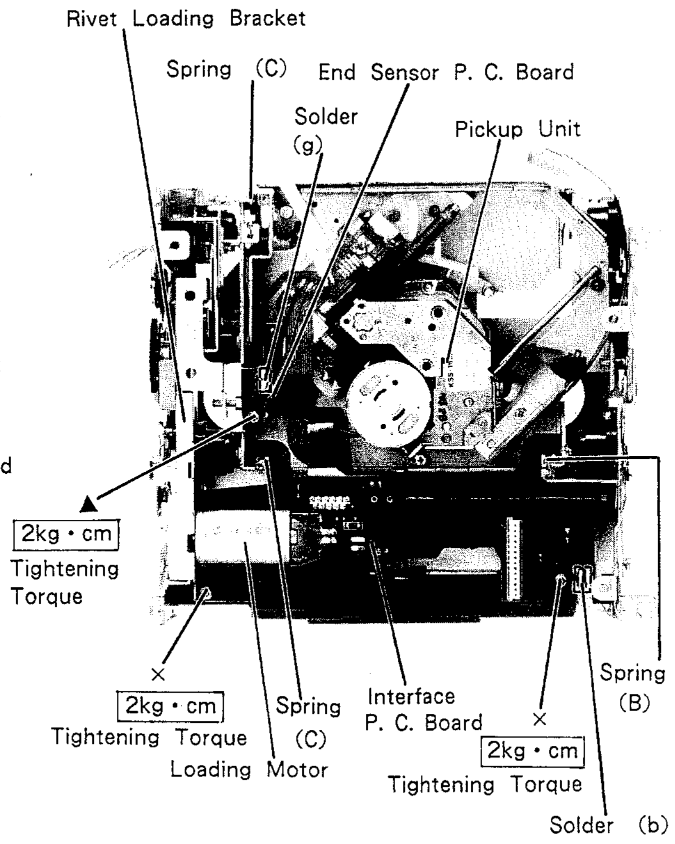

Rivet Loading Bracket
Spring (C)
End Sensor P. C. Board
Solder (g)
Pickup Unit
▲ 2kg・cm
Tightening Torque
×
2kg・cm
Tightening Torque
Spring (C)
Loading Motor
Interface P. C. Board
× 2kg・cm
Tightening Torque
Spring (B)
Solder (b)

Figure 25

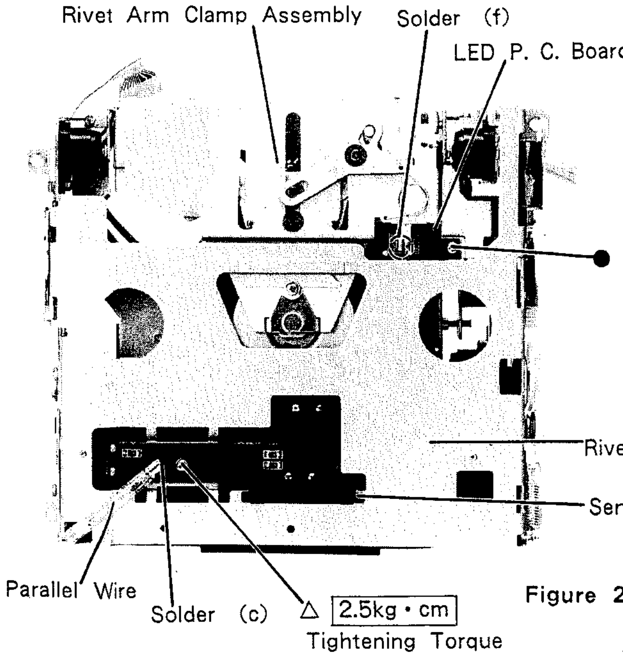

Rivet Arm Clamp Assembly
Solder (f)
LED P. C. Board
●
Rivet Chassis Assembly
Sensor P. C. Board
Parallel Wire
Solder (c)
△ 2.5kg・cm
Tightening Torque

Figure 26

5. Removal of LED P. C. Board

(1) Unsolder the solder (f) as shown in Figure 26.

(2) Remove one screw marked "●" as shown in Figure 26.

Note : When unsoldering the solder (f), take care not to break the parallel wire.

6. Removal of End Sensor P. C. Board

(1) After removing the Main P. C. Board, unsolder the solder (g) as shown in Figure 25.

(2) Remove one screw marked "▲" as shown in Figure 25.

Note : When unsoldering the solder (g), take care not to break the parallel wire.

7. Removal of Damper (L) Bracket

(1) After removing the Main and Interface P. C.Boards, remove one spring (A) as shown in Figure 28.

(2) Remove one screw marked "■" as shown in Figure 28.

(3) Remove the damper from the Pickup Unit shaft, and the bracket can be removed.

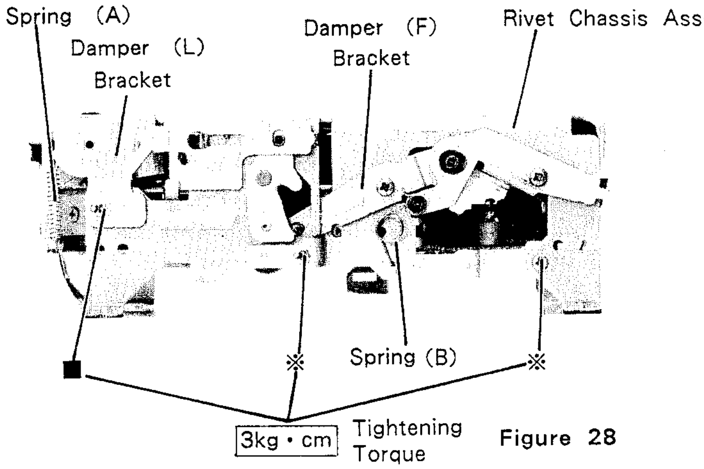

Spring (A)
Damper (L)
Bracket
Damper (F)
Bracket
Rivet Chassis Assembly
■
※
Spring (B)
※
3kg・cm
Tightening Torque

Figure 28

8. Removal of Damper (F) Bracket

(1) After removing the Main and Interface P. C. Boards, remove two springs (B) as shown in Figures 25 and 28.

(2) Remove two screws marked "※" as shown in Figure 28.

(3) Remove the damper from the Pickup Unit shaft, and the bracket can be removed.

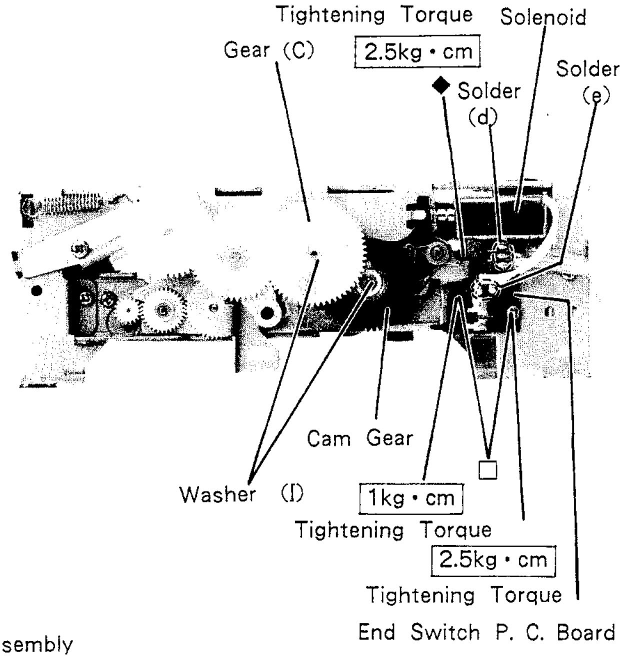

Tightening Torque
Solenoid
Gear (C)
2.5kg・cm
◆ Solder (d)
Solder (e)
Cam Gear
□
Washer (I)
1kg・cm
Tightening Torque
2.5kg・cm
Tightening Torque
End Switch P. C. Board

Figure 27

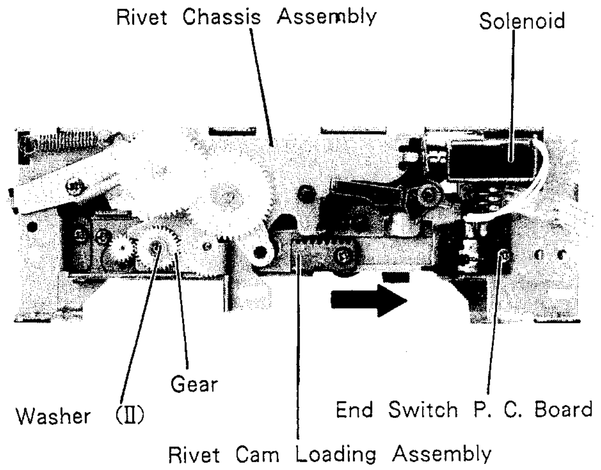

Rivet Chassis Assembly
Solenoid
Washer (II)
Gear
End Switch P. C. Board
Rivet Cam Loading Assembly

Figure 29

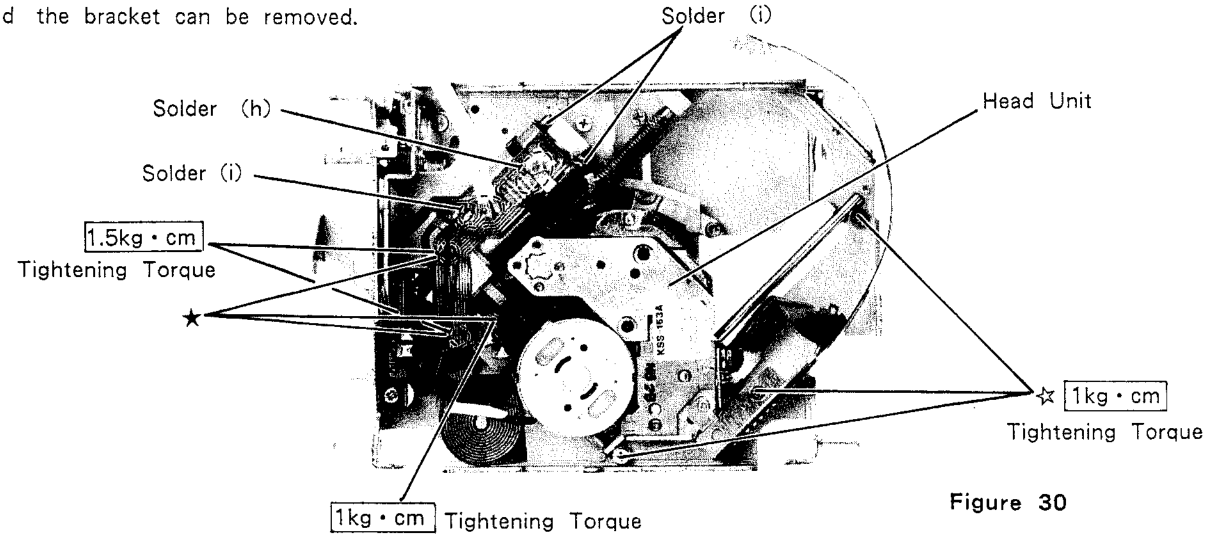
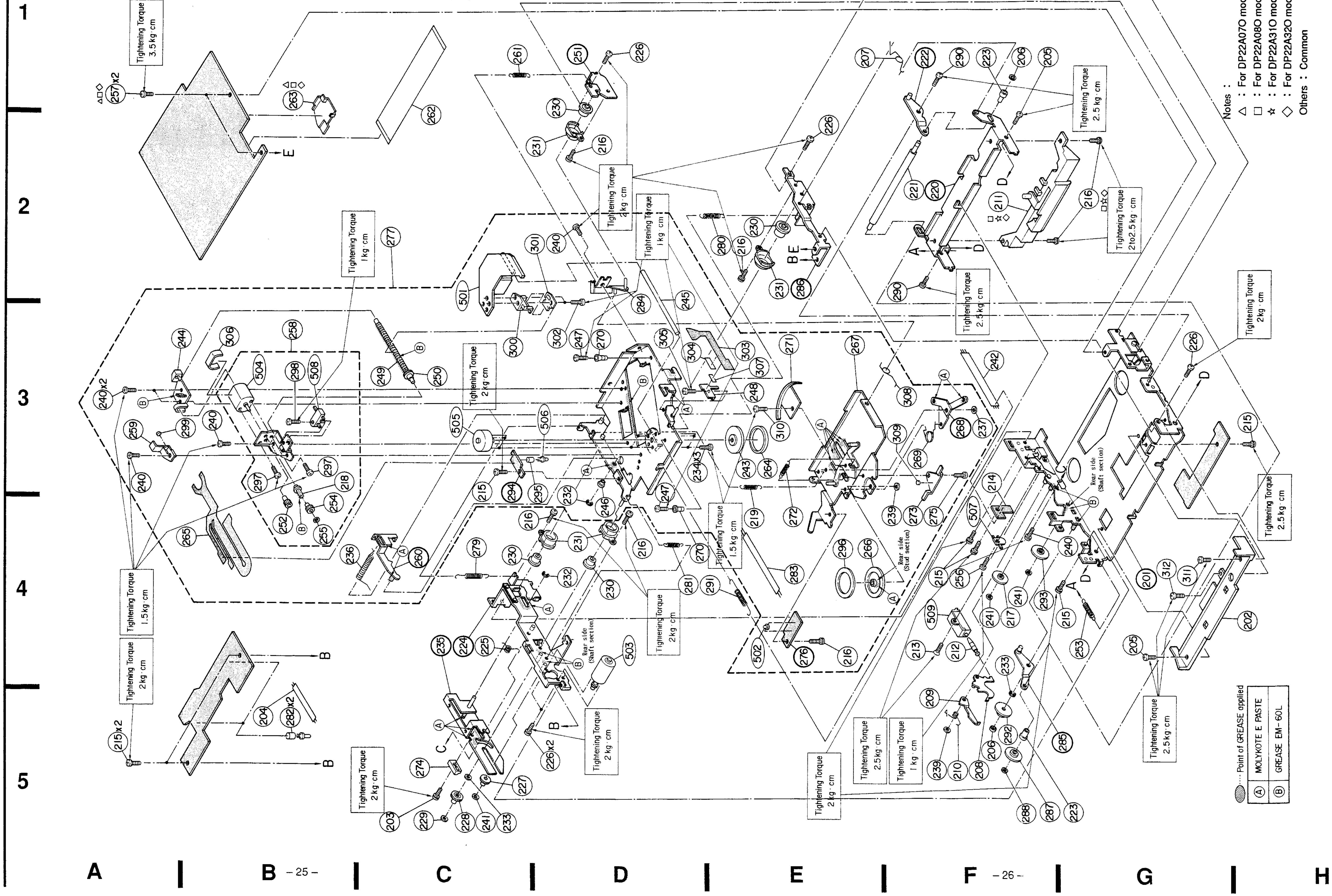

Solder (i)
Head Unit
Solder (h)
Solder (i)
1.5kg・cm
Tightening Torque
★
☆ 1kg・cm
Tightening Torque
1kg・cm Tightening Torque

Figure 30

Exploded View (CD Mechanism)

- For DP22A07O / DP22A08O / DP22A31O / DP22A32O Models


1
2
3
4
5
A
B
C
D
E
F
G
H
Tightening Torque 3.5 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 2to2.5 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 1.5 kg·cm
Tightening Torque 1.5 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2.5 kg·cm
Tightening Torque 1 kg·cm
Tightening Torque 2 kg·cm
Tightening Torque 2.5 kg·cm
Rear side (Shaft section)
Rear side (Stud section)
Rear side (Shaft section)
△□◇ 257 x2
△□◇ 263
262
E
261
251
226
230
231
216
207
222
290
223
206
205
221
220
D
211 □☆◇
216 □☆◇
A
D
226
280
216
230
231
B E
286
290
277
301
240
501
300
302
247
270
284
245
305
304
303
307
248
271
267
308
242
226
D
244
306
258
504
298
508
249
B
250
240 x2
B
259
299
240
240
297
297
218
252
254
255
265
236
260
A
505
506
215
294
295
232
246
216
231
216
230
232
230
279
234 x3
243
264
310
272
219
283
270
281
291
296
266
A
A
268
237
309
269
239
273
275
214
507
215
256
240
241
293
217
241
215
253
312
311
201
202
215
235
224
225
A
503
B
502
276
216
509
213
212
209
233
285
205
215 x2
204
282 x2
B
B
C
A
274
203
229
228
241
233
227
226 x2
B
239
210
208
206
292
288
287
223

Notes :
△ : For DP22A07O model only
□ : For DP22A08O model only
☆ : For DP22A31O model only
◇ : For DP22A32O model only
Others : Common

● … Point of GREASE applied	
Ⓐ	MOLYKOTE E PASTE
Ⓑ	GREASE EM-60L

9. Removal of Pickup Unit

(1) After removing the both bracket for the damper (L) and (F), remove the washer (I), cam gear and gear (C) as shown in Figure 27.

(2) Remove three screws marked "*", and the Pickup Unit with Rivet Loading bracket Assembly can be removed as shown in Figure 31.

(3) Remove two springs (C), remove the damper from the Pickup Unit shaft, and then the Rivet Loading Bracket Assembly can be removed as shown in Figure 25.

10. Removal of Head Unit

(1) Unsolder solder (h) as shown in Figure 30.

(2) Remove three screws marked "☆" as shown in Figure 30.

11. Removal of Servo Motor P. C. Board

(1) After removing the Head Unit, unsolder three solder (i) as shown in Figure 30.

(2) Remove three screws marked "★" as shown in Figure 30.

12. Removal of Loading Motor

(1) After removing the Rivet Loading Bracket, remove one washer (II) and gear as shown in Figure 29.

(2) After moving the Rivet Cam Loading Assembly in the arrow direction, remove two screws marked "◇" as shown in Figures 29 and 31.

13. Removal of Solenoid

(1) Unsolder the solder (e) as shown in Figure 27.

(2) Remove one screw marked "◆" as shown in Figure 27.

Precautions during Disassembling and Assembling

1) Be sure to use brand-new washer and do not use any washer which was previously used. The new washer should not have peeling on cleavage.

2) When performing soldering, take care that temperature of the iron tip will not exceed 320℃ and soldering time should be less than 3 seconds. Also make sure there is no defect soldering such as loose solder, solder short and foil breakage.

3) Useful hints for remounting the can gear and gear (C).

   ① Set the Rivet Loading can Assembly to theloading position as shown in Figure 33.

   ② Engage the gear can with the gear (C) as shown in the Figure 32, and mount them on the shafts (A) of the Arm Load (R) Assembly as shown in Figure 33.

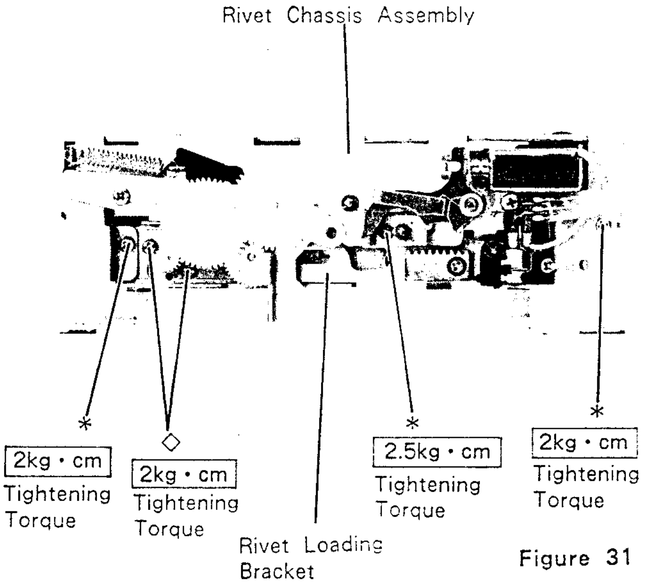

Rivet Chassis Assembly
*
2kg • cm
Tightening Torque
◇
2kg • cm
Tightening Torque
Rivet Loading Bracket
*
2.5kg • cm
Tightening Torque
*
2kg • cm
Tightening Torque

Figure 31

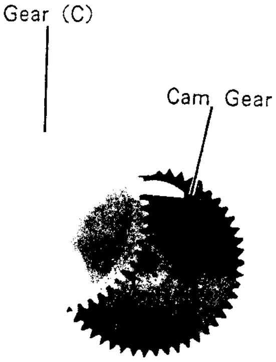

Gear (C)
Cam Gear

Figure 32

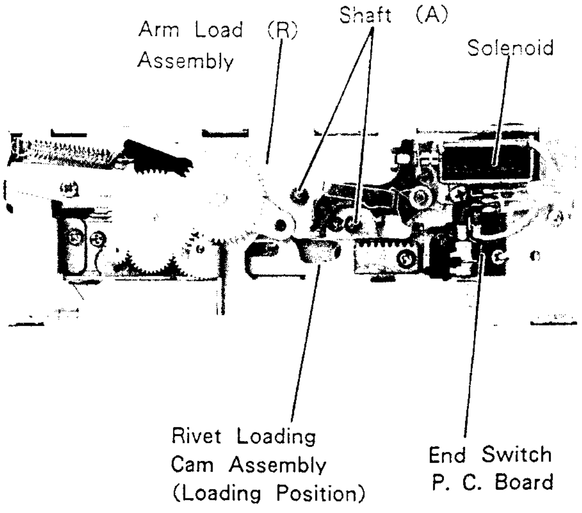

Arm Load (R)
Assembly
Shaft (A)
Solenoid
Rivet Loading
Cam Assembly
(Loading Position)
End Switch
P. C. Board

Figure 33

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